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PAPER

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Powell River Starts Big Development Plans

Ask for Tenders for the First Part of the Work, Which Will Call for An Expenditure of Approximately $6,000,000—Ground Wood Mill of the St. George Pulp & Paper Co., Subsidiary of the International Paper Co. May Be Reopened—Good Progress Now Being Made on Dalhousie Mill—International Paper & Power Securities Incorporates

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., November 11, 1929.—The Powell River Company, which has a large pulp and paper mill on the Powell River, 80 miles north of Vancouver, B. C., will start immediately on its development plans at Lois River, and is asking for tenders for the first part of the work, which will call for an expenditure of approximately $6,000,000. There will be a series of contract awards, new machinery has already been ordered, and the first power unit to be used will total 18,000 hp. The capacity of the present paper making plant will be doubled.

International's Activities in New Brunswick

From St. John, N. B., it is announced that the International Paper Company's pulp mill at St. George, N. B., which has been closed for two years, it on the point of being reopened.

There is also talk of a water power development in the vicinity of St. George where a private source is available. The mill, when running, employs about 100 hands. Contracts are being made for a winter wood supply and new machinery has been assembled.

Officials of the International Paper Company have also notified a committee of the town council of Chatham, N. B., that it is the intention of the company to erect a pulp mill at that place, but that nothing will be done this winter. To this it was added that the company hopes to be able to procure more land, so that a mill of not less than 100 tons per day capacity may be erected.

Meanwhile excellent progress has been made on the company's news print mill at Dalhousie, N. B. It is expected that the first machine will be installed about January 1 next, and that the second one will follow a few weeks later. The capacity of the plant will ultimately be 550 tons of news print per day, the mill having been designed to house four paper machines. Each machine will be of the 226-inch type, designed to produce 137 tons per day.

Merger Cuts Costs

One of the chief advantages that is looked for as a result of the merger of the Wayagamack Pulp and Paper Company and the Port Alfred Pulp and Paper Corporation with the Canada Power and Paper Corporation is in connection with the handling of pulpwood that is floated down the St. Maurice River. Four of the five units that will be comprised in future under Canada Power and Paper Corporation, namely, St. Maurice, Belgo, Laurentide and Wayagamack, receive a large portion of their wood supplies through the St. Maurice River and its tributaries. When Laurentide was merged with the St. Maurice Valley Corporation a considerable saving was effected in sorting out the logs for three of the mills. There still remained a considerable expense in apportioning the cuts of St. Maurice and Wayagamack at the foot of the river. This will now be saved with the four mills operating under unified management.

New International Subsidiary

International Paper and Power Securities, a new subsidiary of the International Paper and Power Company, has been incorporated with a Quebec charter, the head office to be in Montreal. The charter covers a wide field, the company being empowered to transact all ordinary forms of business. Capital stock of the company amounts to $10,000, divided into 1,000 shares of a par value of $10 each.

Placing of Forestry Students

According to Dean C. D. Howe, of the Faculty of Forestry, Toronto University, there is a good enrollment of students for the coming term's work. He added that there had not been much difficulty in placing all the members of last year's graduating class in positions. More than half of them had been taken by private companies, mostly in the pulp and paper field. Probably six or more of the men who have graduated from the forestry school and who are now with private companies are in receipt today of salaries ranging from $6,000 to $10,000 a year. In Government service, on the other hand, the highest salary possible for a graduate forester would be in the neighborhood of $5,500 a year. Of course, it is pointed out, that a Government post has security of tenure attaching to it. Dean Howe states that the graduate foresters are being placed with private companies with comparative ease.

A number of the Toronto paper houses were represented at the meeting of the Toronto Club of Printing House Craftsmen when the organization listened to an address by Harry O'Keeffee, international president, of Detroit.

Coulter D. Young Elected Secretary of I. P.

Coulter D. Young has been elected secretary of the International Paper Company. Mr. Young is a member of the New York and Connecticut bars and has had broad experience in corporate legal affairs.

After graduating from Yale College and Yale Law School he joined the legal department of the United States Steel Corporation. Later he was connected successively with the law firm of Stetson, Jennings and Russell; with the American Trading Company as resident attorney; and then with Davis, Polk, Wardwell, Gardiner and Reed—successors to Stetson, Jennings and Russell—leaving that firm to join the International Paper Company.

Making Book and Bonds at Wisconsin Rapids

Consolidated Water Power & Paper Co. Begins The Manufacture of New Varieties of Paper—Flint Paper Co. Opens Branch Office and Warehouse at Marinette, Wis. — Bergstrom Paper Co. Makes Extensive Addition To Office Building—Speakers for Safety

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 11, 1929.—After approximately ten months of planning, experimenting, building and changing of equipment, the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., actually has begun production of ground wood book and bond papers and other grades. The mammoth mill there no longer is confined exclusively to news print.

All of the machines have been equipped to make the finer grades and most of the work was accomplished without curtailing production of the mill. Under the system finally worked out, the larger paper machines will make news print and the smaller ones will run on book and bond grades. It has not been the company's intention to abandon news print entirely, because the Consolidated supplies a large list of newspapers at the present time and is constantly adding to that clientele. This mill is one of the very few left in Wisconsin where news print is made, because most of the others have switched over to other grades or specialties, leaving news print to the newer Canadian field. While developing suitable book paper formulas, the company was able to improve the quality of its new print and is now ready for a new sales record in the market.

In order to shift the production to new grades, the company built a new 90-ton bleach plant equipped with Wolf vertical two stage bleachers. A new ground wood system also was installed, using copper piping entirely. Another building project was a new finishing room, with super calender stacks. At the same time the company added to its warehousing and shipping facilities.

Paper machines were equipped with new Fourdriniers including Beloit suction couches and press roll, high speed shakes, double slicers, jordans, double smoothing presses, and metering systems for the measure of stock.

Flint Paper Co. Opens at Marinette

A branch office and warehouse have been opened at Marinette, Wis., by the Flint Paper Company, of Milwaukee, Wis., one of the state's largest jobbers. This gives a house convenient to the northern Wisconsin and upper Michigan territory. Fred Hofherr, Jr., a resident of Marinette, is manager of the branch.

Bergstrom Paper Co. Improves Office

Extensive additions to its office building are being made by the Bergstrom Paper Company, Neenah, Wis. The structure is being extended twenty feet in the rear and ten feet at one side. When these units are completed, the interior will be arranged so as to give more working space and added efficiency.

Vocational Educational Speakers

Almost every paper mill city is conducting a safety school this fall, with at least one meeting a week not only for workers but for the public as well. Through arrangements made by the state department of vocational education, a group of prominent speakers has been engaged for all of the schools so each audience will hear the same men. Among these are: Victor L. Noonan, of the Mattison Machine Works, Rockford, Ill.; George P. Hambrecht, state director of vocational education; Ernest Corn, of the National Safety Council, Chicago; Officer Mulcahy, St. Paul, Minn.; W. R. Bennet Na, of Chicago, and Capt. Denny P. Upton, New York City. The school at Menasha, Wis., is already in operation with more than 600 enrolled. Wausau and Wisconsin Rapids start theirs this week. Green Bay likewise is active, and other cities have plans along the same lines.

Northwest Paper Co. Gets Timber Rights

One of the largest sales of timber made by the government in the Great Lakes federal forest district was completed last week with the Northwest Paper Company, of Clouquet, Minn. The company has been given the right to cut 42,500,000 board feet of merchantable timber, and 308,000 cords of pulp wood. The cut will be on a 63,000 acre area in the Superior National Forest in Northern Minnesota.

Reforestation acreage in Wisconsin will be increased considerably through applications which are now coming to the state to establish further lands under the severance tax law, which makes them exempt to taxation until the timber is ready to cut. All land must be listed before December 1, and the state so far has 200,000 acres under cultivation solely for trees.

Working Away From Cheaper Grades

That the Nekoosa-Edwards Paper Company is gradually working away from the cheaper grades of kraft paper was revealed in an address made before the Rotary club at Wisconsin Rapids, Wis., by Len E. Smith, of Nekoosa, Wis., mill manager of the company. Completion of new buildings and the installation of new machinery are the factors which have made it possible to produce kraft of higher quality. High grade envelope, tire wrap and bleached kraft specialties will be manufactured hereafter.
of the elements which go into the making of paper.

Nicolet Paper Co. Has Early Generator

An interesting fact connected with the recent celebration of "Light's golden jubilee" is the ownership of one of the original B-Polar type electric generators by the Nicolet Paper Company, DePere, Wis. Henry Ford has had representatives negotiating for the purchase of the machine so it can be placed in his museum. The generator was purchased by the American Writing Paper Company 35 years ago, and even today it is used for emergency purposes.

Willett M. Elliott Dead

Announcement is made of the death of Willett M. Elliott, treasurer of the Menasha Wooden Ware Corporation, Menasha, Wis., a company which recently opened a large paper carton plant. Mr. Elliott was with the company for more than 55 years.

Buys Mount Holly Paper Co.

WILMINGTON, Del., November 4, 1929.—Herbert W. Mason, owner of Curtis and Bro. Company, of Newark, announced today the purchase of the mill of the Mount Holly Paper Company, at Mount Holly Springs, Pa.

The Mount Holly mill, Mr. Mason said, will be operated as a separate concern under the name of Curtis & Bro. Company, of Pennsylvania, but under the same management as the Newark mill. The products of both firms will be distributed through the present sales office of the Newark company, now maintained in the Ledger Building, Philadelphia, by Charles M. Levis, president.

The Pennsylvania mill, Mr. Mason said, will be modernized and equipped for the manufacture of high grade book paper.

Mr. Mason purchased the Newark mill three years ago from the Curtis family which owned and operated it since its establishment in 1848.

The Bird Centrifiner is manufactured under license from the Centrifugal Engineering and Patents Corporation, holders of the former Erkensator patents

THE BIRD CENTRIFINER

offers you these advantages

¶The Bird Centrifiner removes absolutely all the dirt from the stuff—iron or cork—buttons or dust—all of it—with a separating action hundreds of times the force of gravity. ¶Replaces slow, slimy rifflers, sand traps, and magnetic separators. ¶Often allows the use of less expensive stock on the same grade of paper. ¶Makes the sheet close faster and stronger by helping to separate bundles of fibres. ¶Helps to eliminate waste; fewer seconds and throw-outs; fewer breaks on the machine.

¶Bird Centrifiners and Bird Screens used together form a combination that makes the cleanest, strongest paper you have ever seen. ¶Let us tell you the rest of the story about the new Bird Centrifiner : : : : : :

BIRD MACHINE COMPANY
SOUTH WALPOLE
MASSACHUSETTS

NOW YOU CAN MAKE PAPER THAT IS REALLY CLEAN . . .

USE BIRD CENTRIFINERS

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Paper Demand Shows Expansion in Chicago

Holiday Business Begins To Be Reflected in Increasing Demand for Seasonal Lines of Paper—Prices for Fine Paper Continue Firm With Good Demand—Dealers in Paper Board Look For A Clearing Up of the Price Situation—Wrappings in Better Position

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, November 11, 1929.—The paper trade in Chicago progressed on an even keel during the past week with all lines reporting a growing demand as the late fall period approaches. A number of lines are already being influenced by the Christmas business, notably tissues, wrapping papers and, indirectly newsprints.

Increased size of newspapers and publications using newsprint due to the increased volume of advertising has carried the demand for newsprint along into a busy period. Tissues have only one other period, around Easter, that can compare with the holiday market they are rapidly approaching. Demand is expected to be unusually brisk from now until after the holidays. Book and covers are fair with the prices reported holding fairly well while in the fine paper market, prices are firm. Particularly in the higher grades, the demand is brisk. Board merchants expect to see the price situation clear up in company with improved demand. Production and sales have been good for some time and only a clearing up of the price situation remains to make for a good market. Wrapping papers are brisk and will get stronger with a good business until at least the first of the new year. Prices are strong in ground woods as production is slowed up because of lack of raw materials.

Paperboard Industries to Meet in New York

A large number of Chicago members of the Paperboard Industries Association will leave the city next week for the annual meeting of the association slated for the Commodore Hotel, New York City, November 18, 19, 20 and 21. Two features, the first annual banquet and election of officers for the coming twelve months are added attractions. An unusually large attendance is expected according to reports from the association offices at 608 S. Dearborn, Chicago.

Chicago Paper Association Banquet

The Chicago Paper Association is set for its annual banquet and meeting on Tuesday evening, November 19, the Bismarck Hotel. Although Leo S. Altholz, president, was not ready to give out a definite program he did say that after the routine business session, which includes election of officers, there would be plenty of entertainment and a short program. Officers elected will be installed at the same meeting.

Paper Salesmen to Meet

The Salesmen's Association of the Paper Industry has for its Monday, November 11, speakers, two well-known men in the paper industry. Warren Bullock, general manager of the Import Committee and Mr. Sutcliffe, European Field Representative of the committee will be present. Harold Knott, president of the Chicago division, expects an enthusiastic audience for these men. Both will cover subjects unusually interesting to the salesmen. Mr. Sutcliffe, in particular, will draw upon his European experiences to entertain his audience.

Joins Dietrich Paper Co.

D. W. Dietrich of the Dietrich Paper Company, 228 N. La Salle street, Chicago, has announced the employment of another high grade salesman to add to his rapidly growing staff. Charles A. Courtenay, for a number of years with the Seaman Paper Company and later with the Schwarz Paper Company became associated with the Dietrich organization the first of the month. He will be on the regular selling staff in charge of, and specializing in, coarse papers. Mr. Courtenay has specialized in coarse papers for a number of years and his addition to the Dietrich staff will round out a complete selling corps, experienced in a large number of lines.

Mr. Dietrich also reports the addition of several specialties to his lines including twines and a waxed Kraft refuse bag which is proving a big seller in the hotel field. The LaSalle street firm is also contemplating a move into larger quarters the company having grown from a one man organization two years ago to a five man outfit at the present time.

General News of the Trade

The Chicago Society of Typographic Arts has issued a pamphlet announcing a course of twelve lectures on the fundamentals of fine printing that began November 4 at the Newberry Library. Lectures will be held every Monday evening, according to the pamphlet which was itself a remarkable specimen of typographical beauty.

A timely action is that of the Lincoln Printing Company which has just sent out direct mail to underwriters and dealers in stocks and bonds urging them to merchandise their services in order to give customers opportunity to make unusual buys. Paper gets a stimulus by such timely effort.

A number of printers doing business on Chicago's North Side and organized as the North Side Printers Guild, visited mills in Kalamazoo, Michigan, a short time ago. A party of forty drove to Kalamazoo and thoroughly inspected the Rex Paper Mill. They were shown the manner in which pulp is treated, watched its course through the Fourdrinier and studied the six coating machines and the drying processes. A stop at the Kalamazoo Vegetable Parchment mills was also scheduled, but postponed because of the lateness of the hour, according to reports.

Chicago paper men are again taking an active interest in the National Business Show which is scheduled for the Stevens Hotel, Chicago, November 11 to 16 inclusive. The big exposition is always a stimulator to direct mail business and is well attended by paper men seeking out new ways to influence their customers into making a greater use of paper and paper supplies.

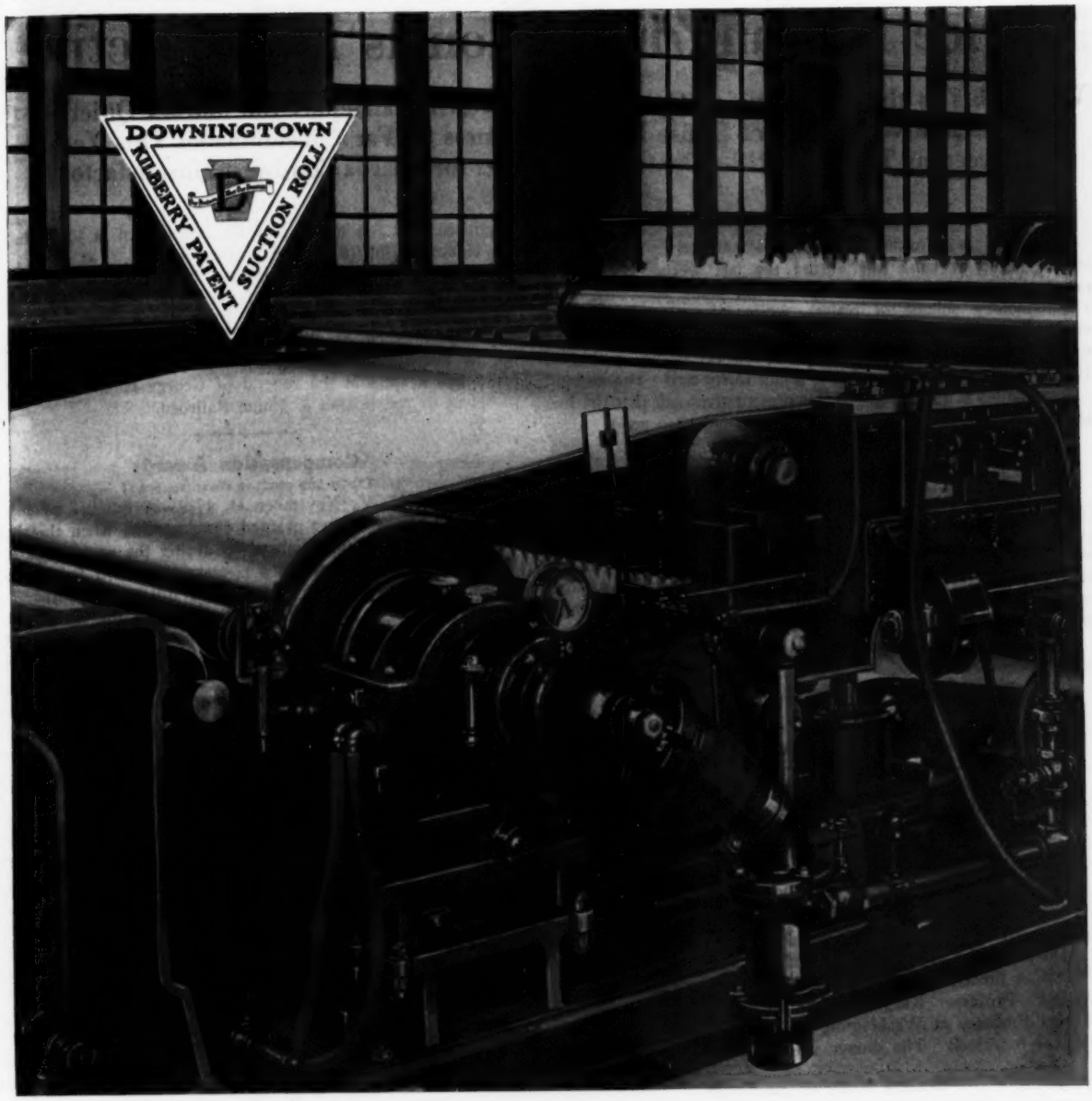
Paul Joslin of the Flambeau Paper Company of Park Falls, Wisconsin, has been in and around the Chicago offices while Jim Coy is away in Florida on a well earned vacation. Mr. Coy is expected back in Chicago next week.

Two new incorporations were announced in Chicago this month that have to do with paper and allied lines. The first is the Paper Tube Company, 1714 N. Daman avenue, Chicago, and the incorporators are listed as B. Hayden, E. C. Murphy, E. H. Garnett. Another is the Paper Cup and Equipment Company which will do business at 367 W. Adams street. L. J. Hulseman, Roy H. Morris and Richard Dooley are listed as incorporators.

Announcement is also made of a new mill in Detroit, Michigan. The Saint Clair Paper Mills have been incorporated with 400,000 shares, n. p. v. and will manufacture and deal in paper paperboard and raw materials, according to notification. The incorporators are C. A. Bradford and C. M. Field of Detroit and J. G. Fox of Kalamazoo, Michigan.

Beisler, Weidman Co. Removes

BELLEVILLE, N. J., November 11, 1929.—The Beisler, Weidman Company, Inc., paper tubes, cartons, wrappings and specialties, has removed its warehouse and office to 233-39 Courtlandt street.



Two and a Half Years' Service at Hinde & Dauch Paper Co.

This illustration shows the Kilberry Suction Couch Roll on the Downingtown Removable Fourdrinier in the mill of the above company at Trenton, Ontario, Canada. This machine is also equipped with a Kilberry Suction Roll at First Press. Simplicity, minimum parts requiring attention, and all adjustments made while machine is running are some of the exclusive features of the Kilberry Roll. Our Bulletin No. 103, gladly sent on request.

DOWNINGTOWN MFG. CO.
DOWNINGTOWN, PA., U. S. A.

Price Demand in Boston Is Fairly Active

While This Is the Consensus of Opinion Some Merchants Report the Market Quiet — One Representative Fine Paper House Reports Business So Far Consummated This Year As Exceeding That for 1928—Demand and Prices for Boards Continues Unsatisfactory

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 11, 1929.—Paper activity in the Hub has averaged at least fair during the last week. Several of the dealers say that business is running along smoothly, with a satisfactory volume of orders, while others report a quiet market. At one fine paper house it was stated that the amount of business consummated for the year so far exceeded that of 1928. The coarse paper market is doing fairly well. The demand for specialties is favorable. Mill representatives say that the low water situation has improved, but that it is none too good.

Box Board Situation Unsatisfactory

The box board situation is still apparently as undesirable as it has been for some time. Values have not advanced; at least quotations for filled news board and chip board have not been marked up. In regard to the volume of sales, in some quarters there is a greater amount. A member of a local box board firm says that in October business had improved. He also states that consumers want immediate delivery of all orders.

A certain reluctance in buying makes the paper stock market inactive, although values are unchanged.

Twine is active, with a gratifying demand for both jute and cotton lines.

Plans for Paper Trade Meeting

At the fall meeting of the Boston Paper Trade Association to be held November 20 at the Exchange Club, Major-General Victor A. Yakhontoff, Russian Army, Retired, and Professor Michael Karpovich, lecturer on Russian History at Harvard College, are to present their views of the situation in "Russia of Today." The title of General Yakhontoff's address is "Modern Russia." He was a general at thirty-five, in charge of operations of the Tenth Russian Army during the World War, and Secretary of War in the Kerensky cabinet. He has distinguished himself in literary and journalistic fields as an author of many articles. Professor Karpovich was formerly Secretary of the Russian Embassy at Washington, D. C. A reception is to take place at 6 o'clock. The dinner will start promptly at 6.30.

General News of the Trade

An auction of undelivered magazines (as reading matter) sent through the Boston post office was held last week, and this method will be followed in the future, instead of selling the material as waste paper. The same plan has been followed in some other cities, including Atlanta and New Orleans.

Knight, Allen & Clark, Inc., have issued a new catalogue and price list, as of November 1. One of their latest lines is Border Bond, made by Fraser Paper Limited. Sample books of papers made by the American Writing Paper Company are to be distributed soon. Recent additions to the K. A. C. lines are Calabash, Cassandra, Fujiyama, L'Aiglon, Monterey and Tambourine.

John Carter & Co., Inc., are handling a line of the Dill & Collins Company, Torchon, a white deckle-edge, water-marked specialty paper, made for watercolor printing, Jean Berte. It is to be made in one size and two weights, 70 lb. and 90 lb. substance, 25x38. New sample books are being prepared.

The New England Paper Merchants Association was one of the first organizations in the city to vote unanimously to close Armistice Day. A meeting of this association is to be held at the Harvard Club of Boston November 21.

Heads of a number of Boston houses, who are associate members, attended a meeting of the Rhode Island Typothetae in Providence, November 5.

Phillip R. Allen, of Bird & Son, Inc., and Col. B. A. Franklin, of the Strathmore Paper Company, were among the honorary pall bearers at the funeral of George Hannauer, who was president of the Boston & Maine Railroad.

Compensation Awards

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., November 11, 1929.—A number of injured paper mill workers were granted compensation when their cases came up before Justice Richardson during the past week. Mrs. William Dygert was granted a re-marriage award for the death of her husband calling for the sum of $1,079.82. Her husband was instantly killed in June, 1926, while working for the St. Regis Paper Company, and the claim was carried by the Standard Accident Insurance Company. John Pierce, an employee of the Dexter Sulphite Pulp and Paper Company, was awarded $460 for loss of the index finger of his right hand. The award covers a period of 23 weeks at $20 per week. An award of $333.80 for the loss of his second left finger was granted to Claude Mahon, who was injured while employed by the Dexter Sulphite Pulp and Paper Company.

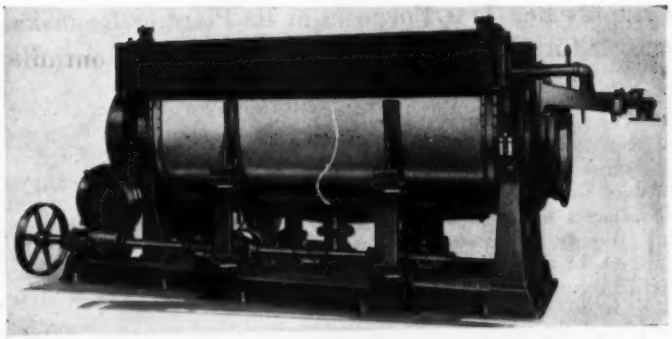
E. Bradway was awarded $998.40 for the loss of the use of an arm. He was injured some time ago from a fall while on his way to work in the plant of Knowlton Brothers. Injured while working for the Warren Parchment Company, Dexter, Alexander Argy was awarded $290.03 for loss of the use of the first finger of his right hand. The award was made for 23 weeks at $12.61 weekly. Henry Rodebrugger was awarded $86.55 from a claim filed for injuries while working for the Coty Machine Company, Watertown. Because the claimant could not describe an accidental injury Referee Richardson dismissed the case of Richard Brough, an employee of Bagley & Sewall. Brough could not recall what he was doing when he suffered the alleged injury in 1928 and it was also brought out that the claim had not been filed within a year.

Retires From Knowlton Bros. After 59 Years

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., November 11, 1929.—With the retirement from service of Mrs. Emma Douglas, an employee of Knowlton Brothers, the firm lost one of its most valued workers who had seen the company grow from a small plant with a single paper-making machine to one of the largest in Northern New York. Mrs. Douglas was retired on pension after more than 59 years of service at the local plant. She entered the employ of the firm when a young girl during a period when the company was turning out writing paper and the changes since that time have been many.

When Mrs. Douglas entered the employ of the firm not one of the present force was working at the plant. She recalls the manufacture of calendars by the firm during the early days and also remembers G. Seymour Knowlton as a young boy playing about the plant. Although there have been few changes in the beating room Mrs Douglas has seen the mill enlarged from time to time as the firm increased its productive capacity.



BIRD SCREENS CAN BE CUSTOM BUILT

Bird Screens are handling two-thirds of this continent's paper production.

If you are letting a special screening problem tie you down to less profitable equipment, remember that Bird Screens can be custom-built — that somewhere specially designed Bird Screens have solved your problem, in a competitor's mill.

Let us work with you on your screening job.

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BIRD MACHINERY

Paper Mills Interested in Lignite in Ontario

Spruce Falls Power & Paper Co. Asks Government To Provide it With First Car of Lignite From Blacksmith's Rapids For Test Purposes at Its Plant at Kapuskasing—Prof. Sandwell, Special Lecturer for Canadian Forestry Association Makes Plea For Forests

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, ONT., Nov. 11, 1929.—The Ontario Research Foundation, recently sponsored by the Ontario Government, will have as one of its first class tasks the investigation of the economic possibilities of the lignite discoveries which have been proved by diamond drilling in the area adjacent to the banks of the Abitibi River, north of Cochrane. Already, it is stated, the research facilities of this organization have been directed toward finding the uses for the product apart from those already known. The importance of the discoveries is also emphasized in the fact that the Spruce Falls Pulp and Paper Company has requested the Government to provide them with the first carload of lignite that comes out of Blacksmith's Rapids in order to test its use at its plant in Kapuskasing. For some years the Abitibi Power and Paper Company has also been keenly interested in the possibilities of lignite deposits and held extensive territory in the vicinity of the Government's operations. Considerable experimental work has been done by H. L. Sanborn, manager of the Abitibi Power Development Company, a subsidiary of the Abitibi Power and Paper Company, operating the power development plant of the company at Island Falls. Meanwhile every effort is being put forth to complete the construction of a road from Mileage 96½ on the Tamiskaming and Northern Ontario Railway into Blacksmith's Rapids so as to have camps completed and the working crews fully housed before winter sets in. It is expected the road will be completed and the men under camp by December 1. An interesting note is to the effect that, instead of the usual wood heaters, stoves are being put in the camps with the idea of utilizing the lignite for fuel purposes throughout the winter. It is also possible that the lignite may be used for fuel under the boilers to supply steam power for sinking operations. Plans of the Department of Mines are to sink three shafts within the two-square-mile area covered by diamond drilling, each shaft to a depth of about 75 feet, for the purpose of taking out bulk samples from which to make test shipments of the product.

Urges Preservation of Canadian Forests

Tribute to the manner in which the Government of Ontario guarded the province's forest wealth was coupled with an earnest plea to support the campaign for preservation of Canada's trees, when Professor B. K. Sanwell, of Montreal, special lecturer for the Canadian Forestry Association, addressed a meeting of the Board of Trade Club in Toronto, this week. "Your forests are still your property," commented Prof. Sandwell. It was a praiseworthy step, he thought, that such sweeping and careful reservations were made by the Ontario Government in leasing Crown timber lands. "The Canadian industries depending on forest products should not be hampered in their logical development by waste, neglect and stupidity," he said. "And I might point out that, generally speaking, the regions where forests are being destroyed to-day cannot be put to any other useful purpose. Ordinarily such districts are rocky and unadapted to agriculture or similar development."

Ontario Mill Men Visited Montreal

Twenty of the mill men of the Howard Smith Paper Mills at Cornwall, Ont., went to Montreal a few days ago, as the guests of the company, where they were entertained by "Ernie" Rolph, advertising manager, along with other machine tenders, backtenders, supercalender men, and boss finishers. The men were treated to a demonstration of color work on the Howard Smith papers at the plant of the Federated Press in Montreal, and then at the Queen's Hotel for dinner and a general conference. The demonstration at the printing plant was specially arranged to show the requirements of different kinds and grades of paper for the work done. The men appreciated the opportunity to see the product they help make put to the test of use on the presses of the printing plant, and were earnest in their belief that the days experiences would be of great service to them in their mill work. Their temporary instructors also were impressed by the manner in which the men absorbed the visual and vocal instruction tendered to them.

Provided Lessons in Economics

A lesson in economics was recently provided by the steamer "Pine Bay" that carried 1,500 tons of kraft pulp from Montreal to Toledo via the St. Lawrence and Welland Canals. The pulp had been brought in a larger vessel from Sweden to Montreal and was transferred at that point to two smaller vessels, one of them the "Pine Bay." The shipment was consigned to the Consolidated Paper Company, which authorizes the statement that by using the all-water route, even with a trans-shipment at Montreal, a saving of nearly a thousand dollars was effected on the Pine Bay's cargo alone. At present the largest cargo that can go through the St. Lawrence canals is 2,500 tons. But when the waterway is deepened cargoes of 10,000 and 15,000 tons will be able to pass in either direction without breaking bulk. The saving of between fifty cents and a dollar a ton effected today with a relay of vessels, will be greatly increased when through cargoes can pass between the heart of the North American continent and the other great continents.

Notes and Jottings of the Trade

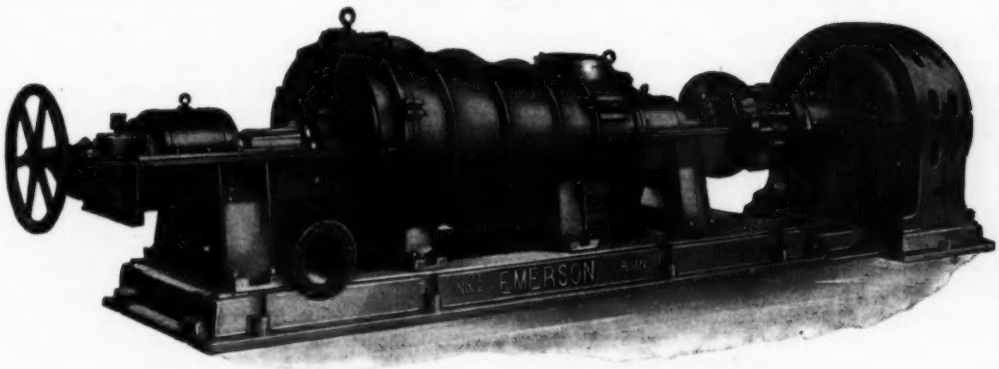
H. J. Rowley, Ph. D., director of research for the Abitibi Power and Paper Company, has returned from a tour of the Maritime Provinces, including a visit to his parents at West St. John, N. B., his alma mater at Sackville Mt. Allison University and Queen's University.

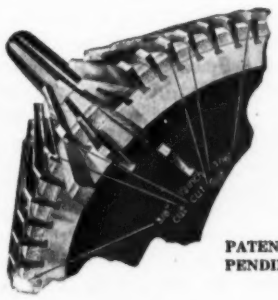
John Horsburgh, a director of Wiggins, Teape & Co., of London, England, a large and well-known paper concern in the Old Country, was a recent visitor in Toronto and district where he visited a number of the mills and wholesale paper houses.

Teijiro Inouye, president of the Rengo Corrugated Paper Manufacturing Company, of Kawasaki, Japan, was a recent visitor to various paper centres in Canada, including British Columbia. He was a member of the first party of the American Prosperity Inspection party, organized by the Japanese Industrial Rationalization Federation to visit this country. The object of the delegation's visit is to inspect industries on the Pacific Coast and elsewhere in Canada. Mr. Inouye represents the Japanese paper and cardboard manufacturing industry.

With the completion this week of the new head office building of Provincial Paper, Ltd., on University, Toronto, three paper firms are now located in new quarters. Provincial Paper has the whole of the second floor in the fine new building and Interlake Tissue Mills, Ltd., have nearly half of the ground floor, while the Don Valley Paper Company, also has space on the ground floor. The new head office building of the Abitibi Power and Paper Company adjoining Provincial is fast nearing completion and the end of the present year should see the staff in the new premises.

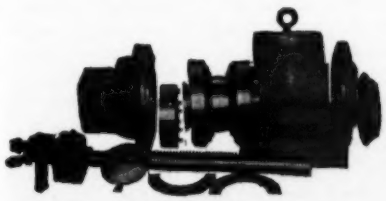
The EMERSON JORDAN
equipped with the
Bolton INVERTED WEDGE Plug





PATENTS PENDING

Showing construction of the Bolton Inverted Wedge Plug. Knives and woods cannot come out. Note Inverted Wedges.



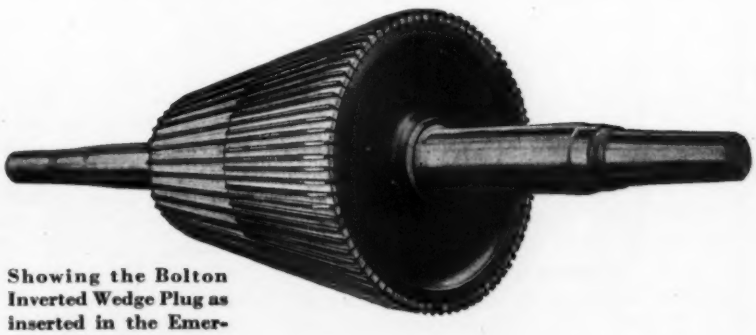
Detail of Timken end bearing which takes care of both radial and thrust.

Now every Emerson Jordan offers you the tremendous advantages of the Bolton INVERTED WEDGE Plug and Timken Roller Bearings.

These two great features put the Emerson Jordan in a class by itself for unit control, lasting satisfaction and true economy. No other Jordan has these great construction advantages.

Make sure of all the benefits and savings that result from these two wonderful improvements in Jordan engineering. Standardize on Emerson Jordans.

Write for full information and estimates



Showing the Bolton Inverted Wedge Plug as inserted in the Emerson Jordan above.

The EMERSON MANUFACTURING COMPANY
LAWRENCE ∞ ∞ ∞ MASSACHUSETTS
DIVISION OF JOHN W. BOLTON & SONS, Inc.

3492

Philadelphia Paper Demand Is Fairly Active

Volume, However, Is Not as Large as Past Week But the Expansion in Demand Is Expected as Soon as It Is Thoroughly Realized That the Recession in Stock Exchange Prices Will Have No Permanent Effect on Business—Fine Papers Are Holding Up Well

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., November 11, 1929.—With a fairly active market for paper generally the Philadelphia industry is looking forward to continued good demand as soon as the clouds that loom on the business horizon have been dispersed after creating a temporary attitude of cautiousness and uncertainty among the heads of industrial concerns. Though the trade continues to enjoy a fairly active demand for paper there is not the volume of business that was noted a few weeks ago when the demand suddenly picked up in an advance preparation for the coming holidays and to stock for the present needs on broader scale. While this attitude of cautiousness has been noted ever since the stock market fiasco there is grounds for belief that it is but a passing factor which will soon be supplanted by assurance and confidence on the part of business men that business will profit by the recessing of prices on the Stock Exchange.

Paper Men Look for Improved Business

Local paper man who have been sounding out the various heads of larger enterprises state that reinvestment of money in business will mean a broader market for many commodities that in the past year or so have been moving slowly. Among these commodities are many grades of papers that usually have a very active market in the Quaker City trade which because of the slowness of business have been sadly lagging behind other grades. It is believed that after the holidays there will be renewed activity in such enterprises as textiles and knit goods where there has been little paper demand in recent times and in the many other industries which have been more or less hurt in recent years for want of development by those who have been seeking the stock market as source of quick profits. The adjustment of business to meet the present conditions will take but a short time and then the revival of the paper markets are looked for. So with confidence the paper trade is looking ahead to the year end business and for improvement after the turn of the new year.

Fine Paper Market Moves Ahead

Fine papers have holding fairly well to the levels of demand of the early month in the wholesale division. The distributors find a spotty demand with alternating active and slower days but the business bulks in fairly good volume for the season. Most of the contract orders for the larger printers and publishers are for the year end needs. Writing papers continue active for the better grades but the cheaper qualities are subjected to the keeness of competition as they have been for the past few months.

Demands for uncoated book papers keep the mills operating at capacity where contract buying has secured for the manufacturers a volume of business that will keep mills busy for the next month or so. There is an active market for finer grades of coardboards and for fancy cover grades.

Wrapping Paper Demand Steady

While the mercantile trade have been cautiously placing orders in the past week pending more definite trend of business, there has been a steady ordering of wrapping paper and holiday specialties that provide work for the shipping departments. Through the volume of traffic in this class of trade is not as great as it was a fortnight ago, there still is gratifying ordering by consumers for immediate requirements. The continued good weather has stimulated demand for sanitary products such as drinking cups and towels and soda fountain specialties which normally fall off at this time of year. Bags are moving in a steady way as the larger nationally prominent producers have the control of the markets although a few smaller concerns continue to offer values below the staple prices of the larger producers. Demand for holiday specialties such as waxed and greaseproof papers and fancy wrappings and holly designed decorative and utilitarian grades has increased as preparation for Christmas gets under way. Paper box makers supplies hold up well as the fancy grades are being bought for the holidays but other standard supplies for the box makers are not as active as they were a month or so ago. Board mills are operating on from 75 to 80 per cent with little board sold ahead despite the present low prices that are asked for tonnage orders. Parchment papers are among the active seasonal grades that are moving in larger volume.

Perseverance Mills on the Market

With the settlement of the financial difficulties of the Perseverance Paper Mills Inc., of Lambertville, N. J., which at the time of the receivership this summer was under control of a company headed by George A. Leavitt, of this city, the mills have been placed on the market for sale or rent, by the present owners of the property who bought it in at the sale in late September. The mills have been placed in the hands of the Gibbs & Brower Company of New York who specialize in the sales of paper mill properties. The mills have within the past few years been equipped with mechanical units of modern type for the production of greaseproof and glassine papers. The mills formerly were owned by the Franklin Paper Company's president Harry A. Jacobs who disposed of the mills to the Perseverance Paper Mills, Inc. company and who held a lien on the property at the time of the sale under the bankruptcy proceedings against that concern and who was appointed by the U. S, District Court in Trenton as trustee for the mills. The mills were bought in at the sale by the Buckley Dunton Company of New York who held an indebtedness against the concern of $27,500 and who bid in the property at the bankruptcy sale. There were three mortgages against the property at the time of the sale for sums of $62,250, $20,000 and $5,750 in addition to the claims of the debtors.

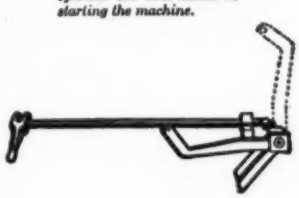
Columbian Paper Co. Improves Mills

President Samuel Hammer, of the Columbian Paper Company who is also treasurer of the W. C. Hamilton & Sons, Inc., paper mills of Miquon near Philadelphia, announced extensive improvements to the mills of the former company located at Buena Vista and Bristol, Va. There is being installed at the Buena Vista Mills entirely new equipment in the beater rooms with the Jones Beaters made by the E. D. Jones & Sons Coompany, Pittsfield, Mass., being added for the purpose of extending the production of soda pulp for the firm's own use in the manufacture of card boards, postal cards, index bristol, lithograph, drawing, loose leaf, envelope, mimeograph, tablet writing, papeterie and book papers. There will be added two new beaters of the Jones type. Another innovation which is being made is the new front to be erected in the dam and the new concrete top which will strengthen and improve it. In the Bristol, Va. mills of the Columbian Paper Company there will be added five new digesters made by the M. W. Kellogg Company, of New York which will be devoted to manufacturing soda pulp for the trade as a commercial product to the var-

A New Meaning of "Factor of Safety"

This safety washer, between the drive shaft and operating parts of the machine will separate the knife from the driving power when overloaded. Easily replaced.

This two hand throw-in lever, furnished upon request, requires that the operator use both hands in starting the machine.



This Seybold Grinder keeps knives ground to an accurate bevel. Write for Circular No. 2215.

FACTOR OF SAFETY. It is always taken into account in the building of strength into a machine.

Seybold builds into its cutters an additional Factor of Safety, just as important as that affecting the strength of the machine,—*Factor of Safety for the Operator.*

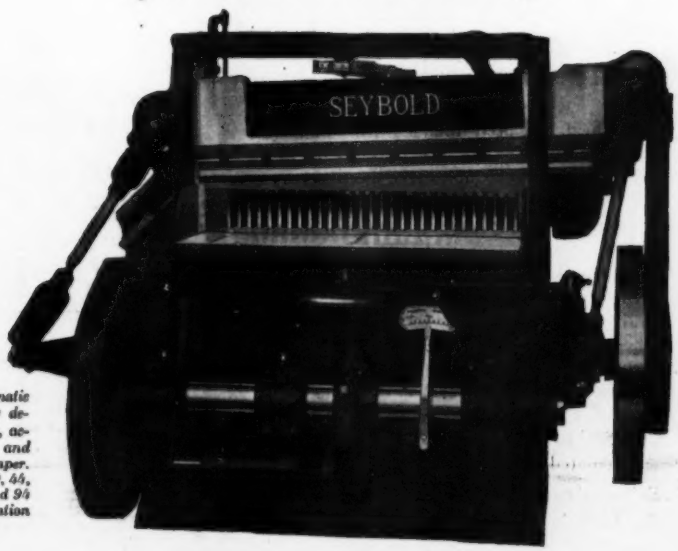
For 49 years, Seybold Cutters have answered the problem of speed, accuracy, and durability. The various members of the Seybold family are as different as the needs of paper cutting.

Let your new cutter problem be answered by the question, not "What cutter shall I buy?", but "What size and style of Seybold will best serve my purpose?". A Seybold representative will gladly assist you—his knowledge will prove helpful.

Harris-Seybold-Potter Co.
SEYBOLD MACHINE CO. DIVISION
Dayton, Ohio

Eastern Sales Agents: E. P. LAWSON COMPANY, INC., 424-438 W. 33rd St., New York, N. Y.
Southern Sales Agents: J. H. SCHROETER & BROTHER, Atlanta, Georgia
Western Sales Agents: CHAS. N. STEVENS CO., 112 W. Harrison Street, Chicago, Illinois

SEYBOLD paper cutters



The Seybold Automatic Cutter embodies every desirable feature of safe, accurate, rapid, easy, and economical cutting of paper. Made in 32, 34, 38, 40, 44, 50, 56, 64, 74, 84, and 94 inch sizes. Illustration shows 44 inch size.

HARRIS · SEYBOLD · POTTER

ious mills of the country and for paper manufacturers generally and to take care of growth of demand for this product.

John M. Driver Removes Headquarters

With the changes in the New York headquarters of the John M. Driver Company, 57th street and Lancaster avenue to a sales office the executive offices are returned to the Philadelphia main plant of the company. Last spring the executive headquarters were established in New York in conjunction with the Metropolitan sales offices at 417 Canal street, where all orders were executed. C. W. Brelle, who for the past six months has been associated with the Driver Company as manager of the sales division will head the executive staff here. The New York offices will continue as a sales center for the Metropolitan territory. The John M. Driver Company has opened branches in all the important cities of the country for the sales of its cellophane and glassine bags, wrappers and other specialties. The local plant is now engaged on a wide range of Christmas designs in bags and wrappers in both cellophane and glassine done in three color printing effects. The company has patented its own devices for printing on cellophane having been a pioneer in this class of printing on cellophane through its own experiments along these lines before a successful method was adopted just a few years back.

Becomes Manufacturers Representative

J. Harvey Rex, who for many years was associated with the John M. Driver Company as sales manager and member of the firm has resigned from that concern to engage in business on his own account with offices in Norristown, Pa. He is featuring glassine and cellophane bags and specialties as a manufacturers representative.

Retires from Progressive Paper Co.

Miss Miriam Clair who since the founding of the firm, has been associated with the Progressive Paper Company, 134 N. Delaware avenue, as its secretary, has retired from the business and removed to Seattle, Wash., where she will make her home with her mother, Mrs. Minnie Waxman. Ever since the firm was established more than a decade ago she has been its secretary having been one of its organizers with her brothers, Harry A. and Samuel Clair. Miss Clair has been living in Seattle several months on a visit but now has decided to remain with her parent in the northwestern city. Her brothers continue to conduct the wrapping paper and specialty business which she helped found.

Direct Mail Display for Ad Clubs

Various advertising clubs throughout all parts of the United States will be given an opportunity of exhibiting the Direct Mail Leaders Exhibit which has been founded for annual display by the D. L. Ward Company, 28 N. Sixth street. Six identical sets of the Direct Mail Leaders Exhibit have been secured for the purpose of placing these in six sections of the country for exhibition among the advertising clubs. They will in turn be circulated among the clubs in New England, Middle West, Pacific Coast and southern parts of the nation. The exhibit is gathered annually by the D. L. Ward Company from the leading direct mail campaigns of the year conducted by nationally prominent industries as the best specimens of such work for the current year in which the exhibit is represented. The present exhibit represents the 1928-29 Leaders of direct mail matter. There are fifty direct mail campaigns represented in the entire exhibit with the six sets of each of these included in those to be circulated over the nation.

Individual Drinking Cup Co. Lets Contract

Plans for the extension to the plant of the Individual Drinking Cup Company, at Easton, Pa. were perfected during the past week when contract was given for the erection of an additional wing to cost $80,000. The new addition will provide for a 25 per cent increase in the manufacture of the firm's specialty the Dixie Drinking Cup. The Dixie Drinking Cups are distributed here by the Paper Manufacturers Company which has a wide demand for the paper cups here and throughout the territory.

U. S. Gypsum Co. to Build

There will be added to the recently acquired Philadelphia mills of the U. S. Gypsum Company another building which will be devoted to the storage of materials used in the manufacture of builders boards. The additional building will be erected on the site of the mills located at 56th street and the Schuylkill River adjoining the present structures already erected for the manufacture of gypsum boards. The contract for the structure has been given to Morton C. Tuttle Company which will erect an $80,000, building for the firm, along the Riverfront.

Takes Up Duties with International Co.

Grellet Collins, Jr., who recently joined the International Paper Company staff is now stationed at the New York State mills of that concern. He is the son of Grellet Collins, head of the Dill & Collins Company, the oldest paper manufacturing concern in the United States and successor to the first paper mills built in the country before the American Revolution. He formerly was associated with the Dill & Collins Company in this city and later with the Bryant Paper Company in the Chemical Laboratories developing new papers for that manufacturer.

Papermill Owner Dies in Toronto

Major A. A. Mulholland, Dominion Government representative on the Toronto Board of Harbor Commissioners, and owner of the Northumberland Paper Company, with mills at Campbellford, Ont., died at his residence near Toronto this week after a protracted illness. Deceased was a well-known and popular figure in Toronto and Dominion industrial affairs. He had reached a high place in the commercial life of the country but of late years his principal concerns were the Toronto harbor and the farm on which he died and where he was born 69 years ago.

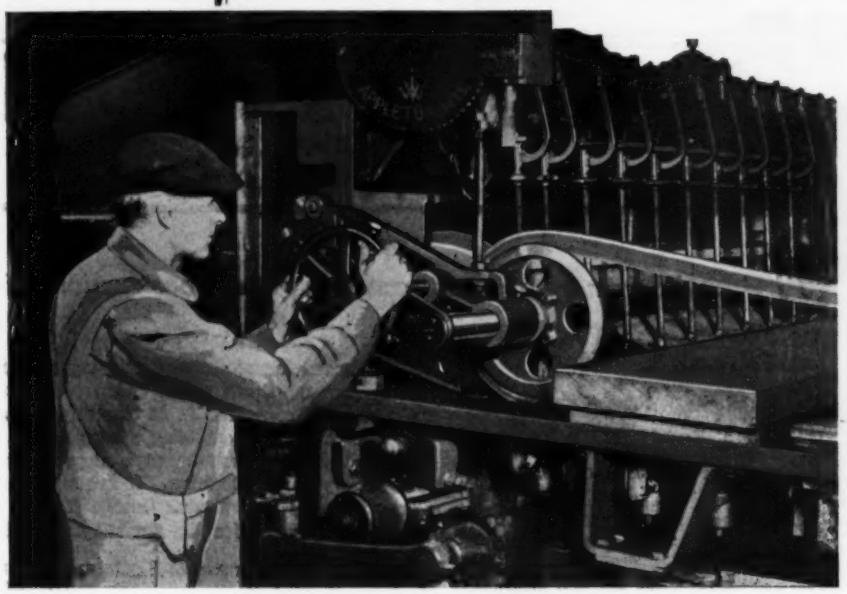
To Reforest Camp Borden Area

Negotiations are under way whereby the Ontario Government will acquire Camp Borden from the Ottawa authorities for purposes of wide-scale reforestation. Information received from Ottawa this week indicates that the entire Borden area, approximating some 25,000 or 30,000 acres, will be turned over to the Provincial Government immediately after the Royal Canadian Air Force shifts its home and activities to the new base at Trenton, on Lake Ontario. Camp Borden, on which many thousands of Canadian troops were trained for overseas in the Great War, it is agreed would make an excellent reforestation station. With Midhurst, one of the Government's crack nurseries, close at hand, the Borden site could, it is admitted, be easily and adequately fed at all times. Originally Borden was an excellent pine country. The Ontario Government is said to have looked upon it for years as an ideal location on which to practice the extensive reforestation work that its policy legislation of the 1929 Legislature calls for. Part of the ground may also be retained for the use of a section of the Provincial Air Force.

New York Men Get Paper Patents

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., November 2, 1929.—Edgar Simzer and Joseph T. Bond, of this place, have been granted patents on their respective inventions, according to announcement from the patent office at Washington. A joint patent was granted to Bond with Wilbur L. Wright, of Fulton, on their invention of a paper container, the rights in which were assigned to the Oswego Falls Corporation of Fulton. The container is adapted for holding rolled papers such as manuscripts. Mr. Simzer's patent was for a heating apparatus for paper mill surge tanks. He did not assign the patent rights in his invention.



This shows one of the exclusive features of the Voith Inlet which permits changing doctor while the machine is running.

"Yes, *but we can't afford it*"

Quite frequently we come in contact with manufacturers who are sacrificing the profits that certain equipment is capable of earning for them because they think they "can't afford it."

***Any* mill can afford *any* machine—whether it costs $10 or $10,000—if it answers a definite need and will pay a satisfactory return on the investment!**

With 282 installations among 125 mills—in this country and abroad—the Voith Stock Inlet is demonstrating its outstanding superiority in *every* phase of inlet operation including greater capacity . . . more uniform caliper . . . better formation . . . lower operating cost . . . and better paper quality.

As part of a new paper machine or as an addition to your present machine—you can't find a more satisfactory, a more profitable, installation than the Voith Inlet.

An inquiry, addressed to the Valley Iron Works Co., Appleton, Wisconsin, will bring interesting data and information to you.

OTHER VALLEY EQUIPMENT

Jordan Engines
Beaters, Breakers, Bleachers & Washers
Flat and Rotary Screens
Screw Presses
Voith High Pressure Stock Inlets
Centrifugal and Stuff Pumps
Laboratory Equipment
Stock Valves—Gate and Plug
Stock Consistency Regulator
Special Machinery

VALLEY

Equipment for Paper and Pulp Mills

New York Office: 350 Madison Ave.
Pulp & Paper Mill Accessories, Ltd., Montreal, Canada, Canadian Representatives

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Tomahawk, Wis.—The Tomanawk Kraft Paper Company has begun excavations for the erection of a new addition to mill on adjoining site, and will proceed with superstructure at an early date. The structure will be used for increased capacity. Estimated cost has not been announced.

Port Angeles, Wash.—The Olympic Forest Products Company, Port Angeles, is beginning work on its proposed new local pulp mill for which initial contracts covering foundations, superstructure for two main units, and wharf were recently awarded. It is expected to have the foundations ready to proceed with superstructure early in the coming year. The main buildings will be 150 x 370 feet, and 50 x 257 feet. A list of machinery to be installed is being arranged, and it is understood that awards for equipment will be placed in the near future. The plant will have rating of about 500 tons of pulp per day, and is expected to cost approximately $1,200,000.

Springfield, Mo.—The Springfield Tablet Manufacturing Company, 214 South Jefferson street, is having plans prepared by Baldwin & Baldwin, Magnolia Building, Oklahoma City, Okla., for its proposed new plant unit, recently referred to in these columns; the structure will be used for manufacturing service, as well as storage and distributing purposes. It will consist of a two-story, L-shaped building, 60 x 120 feet, and one-story structure, 50 x 60 feet, to cost close to $50,000, with equipment. A site has been selected on North Jefferson street. Harry S. Jewell is one of the heads of the company.

Lititz, Pa.—The United States Envelope Company, Springfield, Mass., has concluded negotiations for the purchase of the plant and property of the Consumers Boxboard and Paper Company, Lititz, and will take over at once. The mill has been given over largely to the production of tissue papers, and will be operated by the Morgan Tissue Paper Division of the purchasing company. It is understood that an extension and improvement program will be carried out. Robert J. Black is manager of the Morgan division, and will be in charge of operations at the Lititz mill.

Springfield, Mo.—The Perfection Box Company, recently organized by C. F. Baggett, 1055 Elin street, and associates, with capital of $30,000 is said to be planning the early operation of a new local plant for the manufacture of paper boxes and containers.

Priest River, Idaho—Following reports of E. C. Nelson, Appleton, Wis., consulting engineer and vice-president of the O'Keefe-Orbison Engineering Company, Appleton, relative to feasibility of proposed local pulp mill, for which negotiations are under way between the city and pulp and paper manufacturing interests, the municipality is arranging for the immediate appointment of a finance committee to raise a fund of $50,000, to insure the project for Priest River. The plant, as now projected, is expected to cost close to $1,000,000, with equipment. It is understood that Mr. Nelson will be active in the enterprise.

Niagara Falls, N. Y.—The American Sales Book Company has announced intentions of continuing present plant at Highland avenue and Beech street, and does not propose to remove the works to Elmira, N. Y., as currently rumored in that vicinity. The company is operating a branch plant at the last noted place, and recently transferred a department of the Niagara Falls factory to that location. It is proposed to develop maximum capacity at both plants. George A. Hall has recently been appointed superintendent at the Niagara Falls plant.

St. Paul, Minn.—Brown & Bigelow, Inc., Quality Park, manufacturer of card stocks, etc., has construction nearing completion on new three-story and basement plant, 80 x 122 feet, on University avenue, to provide for large increases in present capacity. It is expected to have the unit ready for equipment installation at an early date. Factory is estimated to cost close to $100,000, with machinery. General contract is being carried out by the Paul Steenberg Construction Company, Builders' Exchange Building, Tolz, King & Day, Inc., Builders' Exchange Building, is architect and engineer.

Sheboygan, Wis.—The Paper Box and Specialty Company, recently organized by John Vander Puy, 1815 North Second street, and associates, with capital of $20,000, is said to be perfecting plans for the early operation of a local plant for the manufacture of paper boxes and containers. John Vander Puy, Jr., is interested in new organization.

York, Pa.—The Barnes Wall Paper Company, West King street, is said to be arranging for early erection of superstructure for proposed new one-story addition to mill, estimated to cost close to $25,000. H. E. and R. B. Yessler, Schmidt Building, York, are architects, in charge.

Piermont, N. Y.—The Robert Gair Company, 420 Lexington avenue, New York, manufacturer of corrugated paper and fibre boxes and containers, is said to be completing plans for proposed new four-story addition to plant at Piermont, 200 x 500 feet, estimated to cost more than $600,000, with machinery, and will proceed with superstructure at an early date. It will be equipped primarily as a boxboard mill.

Chicago, Ill.—The Crescent Paper Box Manufacturing Company has been organized with a capital of 150 shares of stock, no par value, to take over and expand company of same name, with plant at 438 West Ontario street. It is proposed to develop increased output in the near future. Incorporators of the new company are F. J., Y. C. and W. K. Maynard.

Fredericksburg, Va.—The Sylvania Industrial Corporation, 122 East 42nd street, New York, now building a mill at Fredericksburg, has arranged for a change in company name to the Fredericksburg Industrial Corporation. The new plant will be used for the manufacture of transparent wrapping papers, and is estimated to cost close to $1,000,000, with equipment. Dr. F. H. Reichel is general manager.

Philadelphia, Pa.—The Keystone Index Card Company, 3223 Race street, manufacturer of commercial card stocks, has filed

Dryer Section, New 202" Bond Machine
Grays Harbor Pulp & Paper Co., Hoquiam, Wash.

WIDEST *on bond* . . .
202" across the wire

Another epoch making achievement . . . the new 202" bond machine at Grays Harbor . . . designed and built by Bagley & Sewall, in cooperation with the engineers of the Hammermill Paper Company. The largest bond machine ever built, yet constructed and assembled with a degree of refinement in mechanical detail and operating precision never approached in older and smaller types. An outstanding example of the capabilities, facilities and resources of an institution over a century old in experience and skill, yet young enough in initiative and creative ability to meet the constantly progressing requirements of the paper industry.

The Bagley & Sewall Co.

Watertown, N.Y.

plans for a branch at 217 North Thirty-third street, to be used for showroom and office service. Improvements will cost about $17,000.

Beloit, Wis.—The Beloit Iron Works, Inc., 815 Second street, manufacturer of paper mill machinery, has begun erection of superstructure for a new one-story addition to cost about $37,000, with equipment.

Powell River, B. C.—The Powell River Company, Standard Bank Building, Vancouver, B. C., has secured permission to use water from the Lois River on Vancouver Island for power purposes, and will soon begin the construction of a hydro-electric generating plant at that place, on site located about 10 miles from present paper mill. The new station will have an initial capacity of about 16,000 hp., and is scheduled for completion within twelve to eighteen months; it is estimated to cost about $7,500,000. Closely following, another generating unit will be installed to increase the output to 32,000 hp. A transmission line will be constructed from the power plant to Powell River mill, and the output used for that plant. The expansion program also includes extensions in the news print mill, with the installation of another paper-making machine with a capacity of about 35,000 tons per annum; this work is expected to be completed in approximately eighteen months.

Ostrand, Sweden—The Kreuger & Toll Company, Stockholm, Sweden operating a group of pulp mills in Northern Sweden, recently acquired through a merger of a number of interests, is said to be planning the early construction of a large sulphate mill at Ostrand, in the Sundsvall district. The plant will consist of a number of units, and is reported to cost more than $1,000,000. The company has recently arranged for an increase in capital, comprising a bond issue of 37,916,660 kroner (about $9,480,000), and stock issue of 10,833,400 kroner (about $2,710,000), a portion of the proceeds to be used for expansion in different properties.

New Companies, Etc.

New York, N. Y.—The National Pulp and Paper Company has been incorporated with a capital of 500 shares of stock, no par value, to manufacture pulp and paper products. The company will be represented by S. O. Raphael, 305 Broadway, New York.

Brooklyn, N. Y.—The Greenpoint Paper Products Company has been formed with a capital of $10,000, to manufacture and deal in paper goods. The company will be represented by Nathan Orshowsky, 26 Court street, Brooklyn.

Chicago, Ill.—The Nelson Box Company, 4650 Iowa street, has been incorporated with a capital of $5,000, to manufacture paper boxes and containers. The incorporators are William Nelson, Carl E. Abrahamson and Jacob Jacobson.

Grand Rapids, Mich.—The Grand Rapids Loose Leaf Binder Company, 10 Logan street, N. W., has been formed with a capital of $50,000, to manufacture and deal in commercial paper stocks. The incorporators are Evan Johnson and H. M. Durand.

Wilmington, Del.—The Pacific Pulp and Timber Company, care of the Corporation Service Company, Equitable Building, Wilmington, has been chartered under state laws to operate pulp mills and affiliated properties on the Pacific Coast, with capital of $1,000,000.

Pittsburgh, Pa.—The Pittsburgh Paper Mill Supply Company has been incorporated with a capital of $25,000, to manufacture and deal in supplies and materials for paper mills. Nathan Kurtz, Marrowfield Apartments, Pittsburgh, is treasurer and representative.

New York, N. Y.—The Yuban Paper Company, Inc., has been incorporated with a capital of $5,000, to deal in paper good of various kinds. The incorporators are Julius Davison, Joseph J. Gusdango, Jr., and Nathan Lieberman, 760 West End Avenue.

New York, N. Y.—The Protecto Box Corporation, manufacturer of paper boxes and containers, has arranged for an increase in capital from 16,000 to 52,500 shares of stock, no par value, a portion of proceeds to be used for expansion.

New York, N. Y.—The F. H. Lunning Company has been incorporated with a capital of $20,000, to manufacture and deal in paper makers' supplies. The company will be represented by S. D. Spector, 2 Lafayette street, New York.

Chicago, Ill.—The Decorated Paper Specialty Company, 2201 South Union street, has been incorporated with a capital of $75,000, to manufacture and deal in special paper products. The incorporators are Albert and C. F. Brown, and E. B. Brewster.

New York, N. Y.—The Leshner Paper Stock Company, 277 Broadway, New York, an Ohio corporation, has arranged for a change of company name to the Leshner Corporation.

Charles L. Huff Dead

PHILADELPHIA, Pa., November 11, 1929.—Following an illness which necessitated his retirement from activity in the paper industry, Charles L. Huff, former head of the Huff Paper Company, with offices in the Denckla Building, passed away last week at his home 331 S. 43rd street. He was 63 years of age at the time of his death and had been retired from the paper company for more than five years after having been linked with the Quaker City industry since the age of 24 years.

Mr. Huff was an authority on physical sciences and had for many years been an advocate of physical culture and physical eugenics and sanitation. He was often called upon by bodies devoted to these sciences for lectures as an authority well versed in sciences of physical development on a theoretical and practical basis through actual experiences and practices with various organized followers of such tenets. Not only was he prominent in scientific circles of the state but also as one of the foremost members of the paper trade while he was linked with the industry.

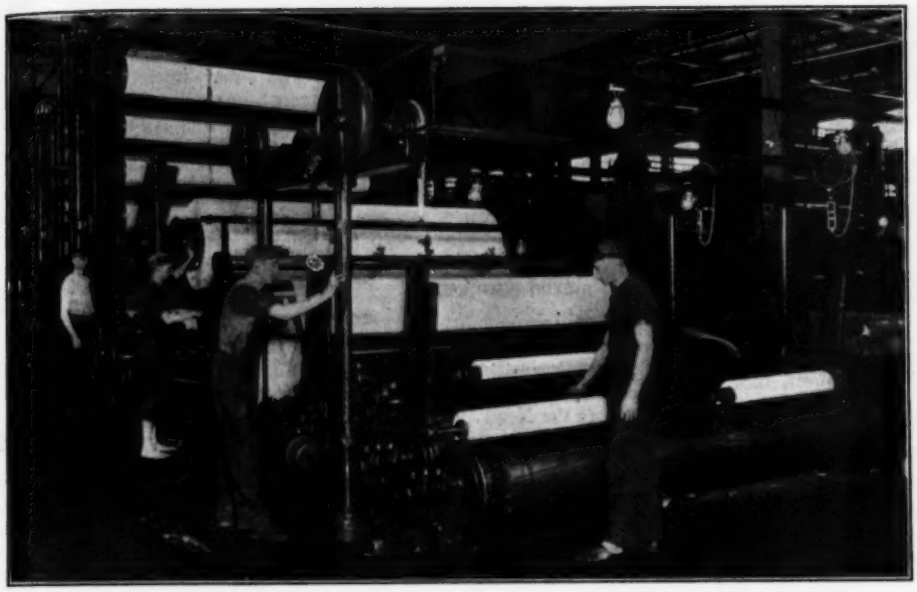
He first joined the paper trade as a member of the firm of Haverstick & Huff, bag manufacturers of the Quaker City in partnership with George Haverstick more than 4 years ago. Later he became associated with the firm of Huff, Barnes & Opie, whose chief connection with the industry was that of bag producers although dealers in wrapping papers and specialties also, with headquarters in 3rd street. Later still, on the death of Mr. Opie and the severing of the association of Mr. Barnes, he organized the Huff Paper Company with offices at the present location in the Denckla Building selling out to the present owners on his retirement five years ago.

He continued to control the business of the Purity Specialty Company, distributors of the Lily Cups up to the time of his death, a business in which he was much interested because of his devotion to sanitation and physical development through attention to cleanliness, and which he continued despite his infirmities. The headquarters of the Lily Cup were located in the Denckla Building adjoining the Huff Paper Company offices.

Mr. Huff was an authority on paper and was most active in promoting the welfare of the trade while he was linked with its business as leader in the bag and wrapping branches of the industry. He was well read and versed in other sciences than those which he made his life's work and was often called on as an after dinner speaker in this city. Surviving him is his widow Charlotte Evelyn Randall Huff. Funeral services were conducted privately.

Columbia Mill Addition In Use

LEE, Mass., November 4, 1929.—The Columbia Mill of the Smith Paper company to which an addition has been made will begin the operation of another paper making machine. The machine has been installed in the addition which has been in the process of erection the past three months. The firm, Lynch Brothers, of Holyoke, had the contract. The same firm completed an addition to the Niagara mill during the summer. The Columbia Mill is now a three machine plant. The mill is under the superintendency of Benjamin E. Teale.



"M & W" Four Drum Winder for Book Paper 18" dia. drums 150" face. Photograph taken in mill of Champion Coated Paper Co., Hamilton, O. (This is one of their 14 "M & W" Winders.

25th Anniversary of the "M & W" Four Drum Winder and Slitter

Today it is still the most practical and economical Winder, and is universally used by leading paper makers.

During the past few years improvements, which are fully covered by Patents, have been made to meet conditions of the modern high speed and up-to-date mills.

OVER 1000 IN OPERATION ON ALL GRADES OF PAPER AND BOARD.

Each roll is wound on an independent shaft. If a break occurs, paper on other rolls is not affected; this means less number of rolls to be pieced.

Plugged rolls are wound on Collapsible Shafts.

Paper is wound on shells or cores of any description. This is a great advantage over the Two Drum Winder Type, as the shells or cores do not have to be the same length as rolls of paper.

NO INTERWEAVING OF ROLLS.

Rolls wound any width and of variable diameters.

Shipping rolls made on paper machines with this winder from an uneven sheet of paper, made hard and without wrinkles.

THE MOORE & WHITE CO., NORTH PHILA. STATION PHILADELPHIA, PA.

PAPER · MACHINE · BUILDERS

New York Trade Jottings

The Munroe Paper Corporation has leased offices in the Court Square Building, 2 Lafayette street.

* * *

C. E. Dobson, secretary of the Southern Kraft Paper Manufacturers' Association, was in town this week.

* * *

Charles W. Boyce, secretary of the Woodland Section, has returned from a conference in Washington, D. C.

* * *

Frederick C. Clark of South Manchester, Conn., consulting engineer in the pulp and paper industry, sailed for Europe Friday on the *Majestic*.

* * *

F. A. Naegeli, formerly chemist and salesman with Atterbury Bros. in New York, is now with J. M. Huber, Inc., New York, distributors of clay.

* * *

L. Smith, of the News Print Service Bureau, has just returned from an extensive trip of inspection through the news print mills of the Lake States and Ontario.

* * *

R. S. Kellogg, secretary of the News Print Service Bureau, will attend the Annual Harvard Business Conference, to be held on Friday and Saturday, November 15 and 16.

* * *

Visitors to Manhattan from Montreal, Quebec, were Mr. and Mrs. John Stadler, well known in the paper trade. Mr. and Mrs. Stadler are staying in New York for a few days.

* * *

Arrangements have been made whereby Thermix Air pre-heaters for boiler service will be sold exclusively by the Babcock & Wilcox Company. The Prat-Daniel Corporation will continue to furnish Thermix Air Heaters for other applications.

* * *

The Salesmens Asociation of the Paper Industry held its regular weekly meeting and luncheon as usual at the Canadian Club, Monday. No speaker was obtained for this week, since the time was devoted entirely to a discussion of plans for the annual meeting in February at the Hotel Pennsylvania.

* * *

E. J. Keller, president of E. J. Keller Company, Inc., 200 Fifth avenue, New York City, announces that he has become sole owner of this corporation and will continue the business with the same policy as heretofore. G. H. Rady, who was formerly vice president and secretary, has withdrawn. Mr. Rady states that his plans for the future are not definitely settled.

* * *

Celotex shipments overseas for the first nine months of this year show an increase of more than 40 per cent over the corresponding period in 1928. Shipments are being made at the rate of 85,000,000 feet a year to almost every country in the world. Sales of Acousti-Celotex overseas have increased 100 per cent in volume and shipments of Celotex roof insulation board are up 150 per cent this year.

* * *

After November 18, Spencer J. Blake, former New York manager for W. C. Hamilton & Sons, will become associated with Richard G. Benedict, 299 Broadway, New York, who represents in the Eastern territory: The Beveridge Paper Company, Kalamazoo Paper Company, Lee Paper Company and Michigan Paper Company. Mr. Blake has been connected with the paper trade in New York for the past ten years and is well and favorably known among the various paper merchants.

C. M. Baker, engineer of the American Paper and Pulp Association, is now in the East, and is about to begin a survey which will probably require several weeks of intensive research. He will visit a number of mills in New York State, Connecticut, Massachusetts and New Jersey. Mr. Baker is co-operating with several mills throughout this territory, and with various state officials in the promotion of waste utilization with stream improvement. These visits are being made largely consistent with the policy of the association in giving individual mill service. As outlined in the foreword to the pamphlet "The Closed White Water System" distributed by the association, the assistance of Mr. Baker is available to all mills who desire a report on the desirability of a waste utilization program, and if nearby organizations wish to reach Mr. Baker, a communication sent to him at the office of the association, 18 East 41st street, New York City, will receive prompt attention.

News Print Production for September

Production of news print in Canada during September, 1929, amounted to 227,665 tons and shipments to 226,623 tons, according to the News Print Service. Production in the United States was 108,155 tons and shipments 107,495 tons, making a total United States and Canadian news print production of 335,820 tons and shipments of 334,118 tons. During September, 20,733 tons of news print were made in Newfoundland and 1,298 tons in Mexico, so that the total North American production for the month amounted to 357,851 tons.

The Canadian mills produced 261,318 tons more in the first nine months of 1929 than in the first nine months of 1928, which was an increase of 15 per cent. The United States output was 9,278 tons or 1 per cent less than for the first nine months of 1928. Production in Newfoundland was 17,659 tons or 10 per cent more in the first nine months of 1929 than in 1928 and in Mexico, 1,839 tons more, making a total increase of 271,538 tons or 9 per cent over the same period in 1928.

During September the Canadian mills operated at 91.3 per cent of rated capacity, United States mills at 80.3 per cent and Newfoundland mills at 109.6 per cent. Stock of news print paper at Canadian mills totalled 30,742 tons at the end of September and at United States mills 26,490 tons, making a combined total of 57,232 tons which was equivalent to 3.6 days' average production.

Superintendents To Meet at Holyoke

HOLYOKE, Mass., November 11, 1929.—The Connecticut Valley Division of the American Pulp and Paper Mills Superintendents Association will celebrate its seventh birthday with an annual meeting at the Hotel Nonotuck, this city, Saturday, November 16.

The business session which will be presided over by John P. Kennedy, will open at 1:30 P.M. Among those who will address the members will be H. C. Reynolds, comptroller of the American Writing Paper Company, whose subject will be "Control in Management" and Charles J. Ramsay, national president of the American Pulp and Paper Mills Superintendents Association.

From the program mapped out, this annual meeting should be of real importance to every eastern pulp or paper mill superintendent.

Complete information relative to hotel reservations, etc. can be obtained by addressing Andrew T. Barnett, secretary, Connecticut Valley Division, 41 Portland street, Holyoke, Mass.

Entertainment will be provided for the ladies attending, sight seeing trips, and theatres.

Address of A. R. Holton Requested

The PAPER TRADE JOURNAL has been requested to ascertain the address of A. R. Holton, who is probably employed in one of the paper mills in the United States or Canada. If Mr. Holton will communicate with this office or if anyone knowing his address will send it to the PAPER TRADE JOURNAL, 10 East 39th street, New York, it will be appreciated.

Since 1925, orders and re-orders for Briner Economizers have accompanied each important expansion of Fraser Companies developments at the great Madawaska mill. This equipment has been specified for sulphite bond machines, book paper machines, board and catalog machines. For one after another of each type of machine, the Briner Economizer has been continuously specified.

Six machines already equipped, and the seventh now being completed,—and most satisfactory results being attained on all four classes of machines. Only an enviable record of results secured could justify such confidence as is reflected in this program that we have been privileged to carry out for this noted paper making organization,—one of the most progressive and successful in the entire industry.

There can be no more convincing proof of the merit of this organization's methods of designing, manufacturing and installing paper mill heating and ventilating equipment than this enviable record at Madawaska.

J. O. ROSS ENGINEERING CORPORATION

208 W. Washington Street, CHICAGO — Main Office—122 East 42nd Street, NEW YORK — 519 American Bank Bldg., PORTLAND, ORE.

ROSS ENGINEERING OF CANADA, LIMITED

NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS

HEATING—VENTILATING—DRYING

R. O. Sweezey's Gigantic Power Project

MONTREAL, Que., November 11, 1929.—A young engineer named R. O. Sweezey, of Montreal, who formerly specialized largely in pulp and paper projects, is now the head of a company that has just begun the construction of a 2,000,000 horse-power hydro-electric plant on the St. Lawrence river just west of Montreal, the largest single industrial enterprise ever attempted in Canada outside of railway construction. The gigantic character of the undertaking may be judged from the fact that the development aimed at will give a total volume of power as large again as the present development of all the power units on both sides of the international boundary at Niagara Falls put together.

Formidable Difficulties

The difficulties in the way of this development were so formidable, not only physically and financially, but by reason of the conflicting views of the federal and provincial governments, the former featuring navigation interests and the latter uncertain as to the provincial status regarding ownership of power rights in navigable rivers, that none of the big power magnates had dared to touch the project.

Some ancient power charters were possessed at the point by the Robert family, and Mr. Sweezey secured an option on these for $100,000. Then he weighed up all the forces against him and hesitated. The project of successfully running the gauntlet of federal and provincial politics seemed well-nigh hopeless, even more so from the fact that he knew the entire horse, foot and artillery of the entrenched power interests and navigating companies would oppose the plan.

According to the *Financial Times*, of Montreal, Mr. Sweezey tells the story of how he decided the matter as follows:

"I wrote out the check, but somehow could not drive myself to pen the signature. I sat for half an hour, with the feeling that it was a sheer waste of money, that the job of getting a bill through the Legislature was beyond my scope.

"Then I decided to settle the question with the flip of a coin. I pulled a quarter out of my pocket, but realizing that that was a foolish way to decide a business proposition, recklessly dashed off the signature and told my secretary to get it mailed before I changed my mind."

One of World's Greatest Power Magnates

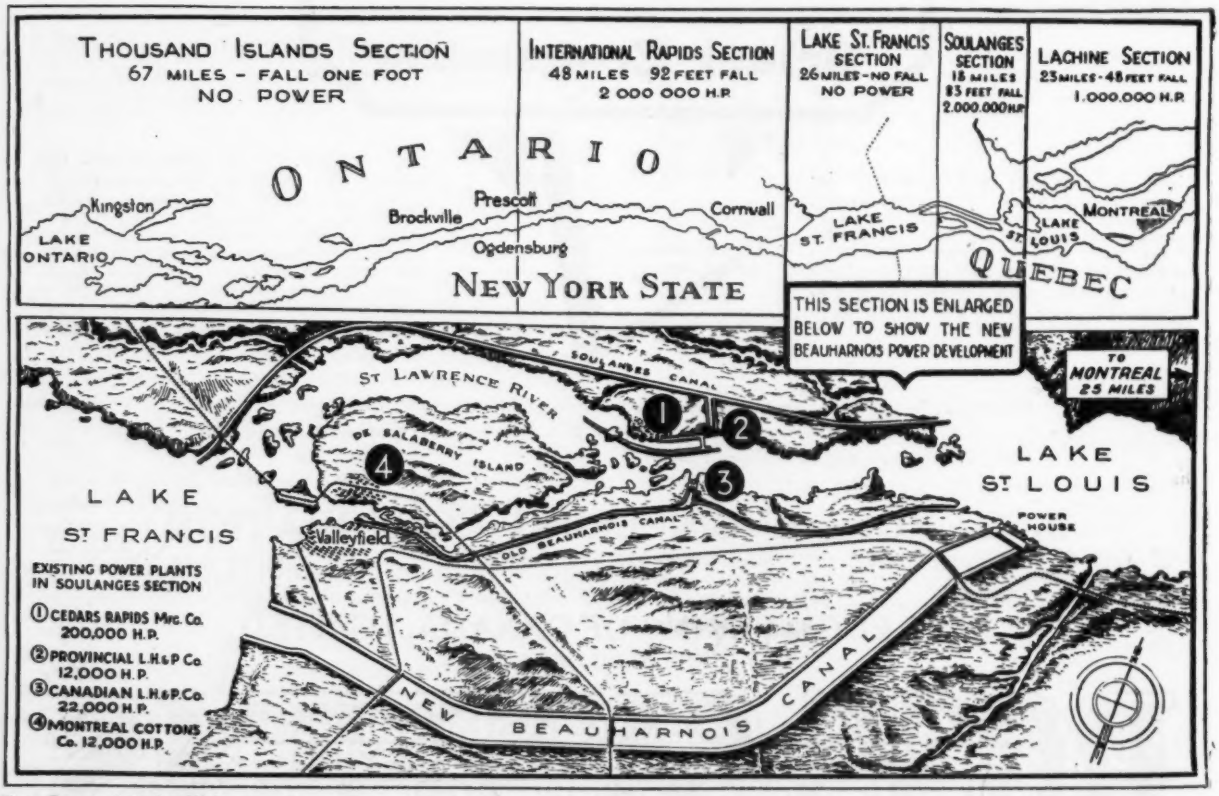
With that impetuous action his career changed from that of an engineer to that of one of the greatest power magnates in the world.

But the moment the check was sent the fight began. One of the greatest struggles ever remembered in the legislative halls of the province and of the Dominion was precipitated. For two years it was touch and go. Then consent of the authorities was given. And this fall the work of active construction began. The plant is to deliver power before the end of 1932.

Initial Unit To Cost $65,000,000

The initial unit of 500,000 hp. will cost $65,000,000, it is estimated. Included in this cost is $16,000,000 for a navigation canal half a mile wide, 27 feet deep and 73 miles long. This canal, on completion, will be presented free to the Dominion government as part of the ocean steamship canal between Montreal and the Great Lakes.

The company carrying out the project is named the Beauharnois Light, Heat and Power Company, and Mr. Sweezey is the president.



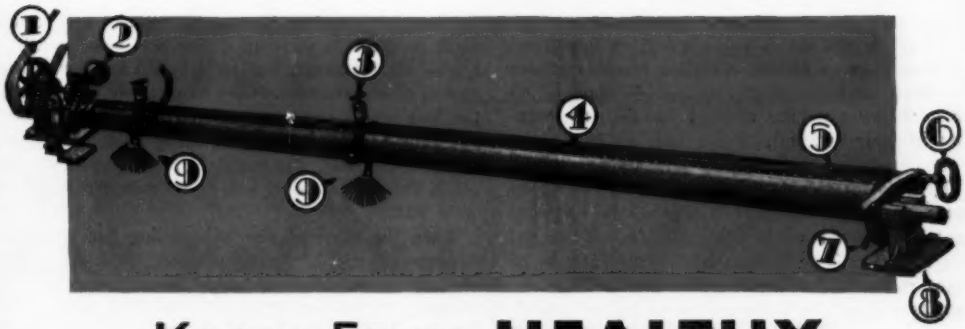
From Toronto Saturday Night.

THIS MAP SHOWS THE RELATION BETWEEN THE BEAUHARNOIS POWER SCHEME AND THE PLANS FOR THE JOINT INTERNATIONAL NAVIGATION AND POWER PLAN.

DUO·SPRAY DUO·SPRAY DUO·SPRAY DUO

NEW!... IMPROVED!...

The LANSING DUO·SPRAY Felt Washer



KEEPS FELTS **HEALTHY**

Keeps felts soft, pliable, clean — more effectively than any similar device ever offered. Its *double spray* travels continuously back and forth across the entire width of the felt, washing away all foreign matter with *two* strong jets of water. Entire action fully automatic. Adds tremendously to the life and good condition of felts. Glance over its many advantages:

1. ECONOMICAL DRIVE — From any convenient shaft or pulley, or by individual low power motor, as preferred.
2. SELF REVERSING — At the end of each trip this weight is automatically thrown over, reversing the direction of travel.
3. FULL LUBRICATION — Ample oil cups provide constant lubrication, assuring smooth, friction-free operation.
4. POSITIVE DRIVE — A precisely cut worm keeps the sprays traveling continuously. Removes the risk of having the spray stop at any point.
5. AUTOMATIC TRIPS — Spring trips automatically actuate the reversing apparatus on a simple principle that can practically never fail.
6. SIMPLE CLUTCH — Started and stopped by an easily accessible hand lever clutch.
7. DRAIN — Carries away all excess water from the Washer mechanism.
8. EASILY MOUNTED — On any convenient part of the machine frame, without elaborate piping or connections. *Hinged construction permits raising entire Washer out of the way when replacing felts.*
9. DOUBLE SPRAY — The two sprays travel as a unit, giving a wide area of coverage and double cleansing capacity. Flow is sufficient to eliminate showers and whippers in most installations.

Exhaustive tests of the Duo-Spray Washer under actual mill conditions have demonstrated its ability to fulfill every claim. One mill reports felt life exactly doubled since installing the Washer.

NOBLE & WOOD MACHINE COMPANY

Hoosick Falls New York

Manufactured Under Personal Direction of Eugene H. Lansing

DUO·SPRAY DUO·SPRAY DUO·SPRAY DUO

Power Plant Section

Reducing Power Costs Through Unit Treatment

Conducted by Reginald Trautschold, Consulting Engineer

Couplings and Clutches Important Factors

In Economical Mill Operation

Two bearings, and only two, can really be made self-aligning. This is almost as axiomatic as that a straight line is the shortest distance between two points. A further truism is that any shaft misalignment, when two shafts are coupled, or joined together, rigidly, is sure to cause serious operating troubles sooner or later, even if the amount the shafts are out of line is no greater than the necessary clearance allowed for the free turning of the shafts in their bearings. Every mill superintendent knows this and the emphasis here would be quite unnecessary if it were not for the truly formidable toll in power losses, aggravated maintenance and repair expenses enacted in virtually every mill through a disregard of the alignment law and to too great dependence upon available devices by which the evils of shaft misalignment are in some measure circumvented.

Because two shafts slightly out of line, when joined by a modern flexible coupling, may function apparently satisfactorily for long periods should be no justification for countenancing any unnecessary shaft misalignment. The very fact that the coupling functions under such circumstances is an indication, in fact, that a certain tax in power waste is imposed, a burden exacted in very small increments over an extended period, it is quite true, but a tax nevertheless. Then there are the expenses for flexible coupling upkeep, replacements, lubrication and inspection, all of which, trivial though they may be individually, in the aggregate add considerably to the cost of shaft misalignment.

Were such mal-aligned shafts rigidly connected, conditions would obviously be very much worse, however, and as perfect and permanent alignment is well nigh unattainable even when only two bearings are entailed, flexible couplings really play a most important part in safeguarding against costly interruptions to productive activities and against operating delays. However, their chief value lies in their use as insurance against production losses, rather than in effecting any specific savings or major economies, for they pay best when they have least to do. Consequently, instead of flexible couplings justifying any preventable shaft misalignment, they should command the utmost care in effecting good alignment and the capacity of the coupling to maintain uninterrupted operation under conditions of limited shaft misalignment should be conserved to combat that unavoidable misalignment which develops in mill operation through bearing wear, sag of shafts, settling of machines and equipment and other unpreventable mishaps.

Circumvention of Excessive Misalignment

That the modern, approved, flexible coupling can and does respond to even excessive demands in circumventing misalignment of shafts is well illustrated by the experience at a certain paper mill a few years ago. Incidentally, this is a case not of what even a modern flexible coupling should be expected to do, but rather a case of what one did in an emergency. It is an example, however, of the pronounced capability of present day flexible couplings.

It seems that at about 10 o'clock one night a coupling specialist was called on the phone by a mill claiming to be in immediate need of a flexible coupling to connect two sections of a jack shaft in order to start up a new box board machine. One section of the jack shaft was to be belted to an engine and the other section to the machine. In transpired on investigation that while the box board machine, which was housed in a new building, had been fairly accurately lined up with the outside of the old engine room wall, the engine, though apparently correctly located in the engine room, was by no means parallel with the alignment wall.

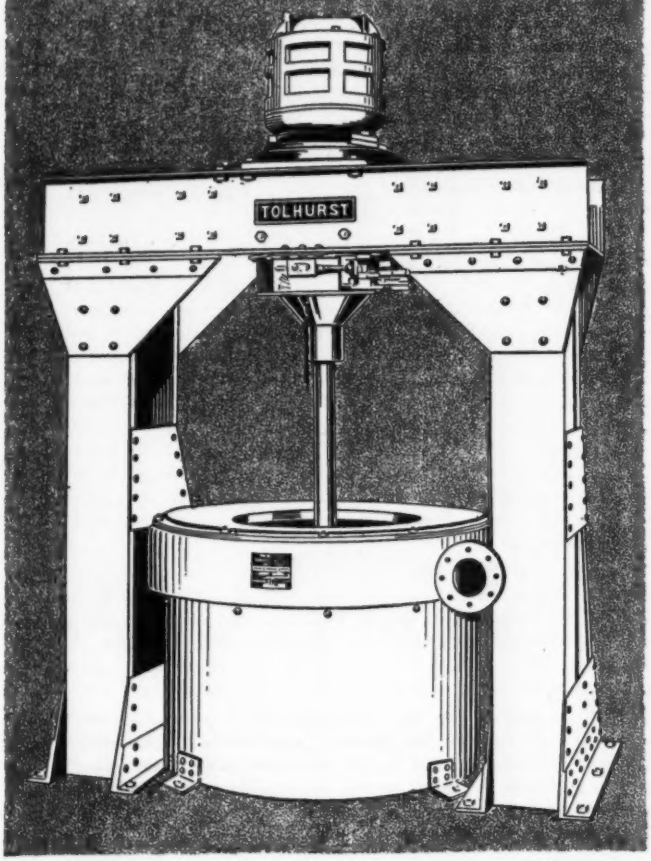
When the required size of coupling had been determined, its horsepower, speed, shaft sizes, etc., and the misalignment under which the coupling would have to operate computed, the coupling expert was frankly afraid that the conditions were altogether too severe for a successful flexible coupling installation. He could supply a coupling of the required size and capacity which he thought might stand up for a month or two, but recommended strongly that the shafts be lined up properly.

The new box board machine had entailed a heavy investment, several hundred thousand, however, while the cost of the flexible coupling was a matter of only about $150.00, and the mill felt it could not well afford to hold starting the machine while the needed corrections in alignment were made. It seemed a better proposition to install the coupling under the existing unfavorable conditions and run along as well as possible for a month or two, even though it might mean at the end of such short period scrapping the coupling and installing a new one. Consequently, the cupling was rushed to the mill, installed and the box board machine was put into productive operation within about 24 hours of the first telephone call.

The concern supplying the coupling, fearing an early mishap, kept in close touch with the mill for several months, but the anticipated collapse failed to materialize and the coupling is still, after two or three years, functioning apparently satisfactorily, turning over day after day without interruption. The mill presumably feels that it has benefited considerably by saving the loss of production that it would have had to experience had it been deemed advisable to shut down long enough to move the engine on its foundation in order to line up engine, jack shaft and box board machine. Perhaps it has.

While this is a somewhat unusual case, it is only an exaggeration of countless occurances taking place daily where flexible couplings are installed and dependent upon to cover carelessness in equipment and shaft alignment. Such practice is certainly reprehensible, except in rare instances, as when heavy capital investment renders an enforced shut-down even for major corrections too costly. Ordinarily, in order to capitalize to the utmost upon flexible coupling installations it is necessary to secure the best possible shaft alignment before machines are placed in operation and to inaugurate periodic checks on alignment after starting the machines, to guard against long periods of running

CLEAN PAPER



IT COSTS MORE TO PRODUCE NEARLY CLEAN PAPER THAN PERFECTLY CLEAN PAPER

With centrifugal paper and pulp stock preparation becoming more and more general, paper standards become increasingly exacting. Nearly clean paper must make way for that which centrifugal processing makes perfectly clean.

A large increase in No. 1 sheets results from the use of the Tolhurst.

In the machine, there is a vigorous brushing out action which separates the fibre bundles and which results in better strength tests.

The stuff being free of all impurities (light or heavy, microscopic or large), the wires are thereby enabled to operate at a higher standard of efficiency and remain on the machine with fewer stops for souring.

For the complete story of the Tolhurst Centrifugal, write for Bulletin.

DESIGNED AND BUILT BY SPECIALISTS

This machine is made under license of the Centrifugal Engineering and Patents Corporation, holders of the Erkensator Patents.

TOLHURST MACHINE WORKS, INC.
TROY, N. Y.

New York Office: 30 Church St.
Chicago Office: 8 So. Dearborn St.

under bad conditions and to avoid so far as possible the insidious and pyramiding impost exacted for any unnecessary shaft misalignment.

Furthermore, imposing any excessive duties in the way of circumvention of avoidable misalignment upon a flexible coupling seriously handicaps the device in the discharge of other of its important functions, namely, in cushioning starting and sudden load shocks and objectionable vibrations. These latter functions of flexible couplings may be every bit as important as the compensating for limited or accidental shaft misalignments, particularly in view of the continually increasing dependence upon direct-connected and geared drives, with which the use of a connection providing a certain amount of yield under excessive strain is virtually essential if maintenace and repair expenses are to be kept at a minimum and high efficiency in power utilization realized.

Flexible couplings are in effect almost indispensable adjuncts to the modern speed reducers which have been so instrumental in making commercially feasible the use of individual electric motors and steam turbines as supplementary power units as well as prime movers. In fact, it is the modern flexible coupling which has been responsible in large measure, in many instances at least, of making it possible to discard space consuming and less efficient belt drives for the far more compact, efficient and in the long run cheaper motor-speed reducer drives.

The legitimate use of flexible couplings, however, *i. e.*, their use as insurance against production losses and operating delays rather than as correctives for unnecessary shaft misalignment, is by no means limited to their extensive employment in direct-connected and geared drives, for there is also a very proper use for them where their misalignment adaptability is the dominating consideration, as it quite obviously was in the instance cited of the box board machine drive. In fact, in many places where belts are used for the transmission of the power and the cushioning capacity of the coupling is consequently of not such importance this is so, some experienced engineers even going so far as to recommend the use of flexible couplings in almost every instance where four or more bearings are concerned in the transmission.

The alignment of lineshafting with bearings at comparatively long intervals is seldom accurate and even if fairly accurate in the first place can seldom be so maintained, but wherever short shafts are employed and rigid bearings shaft alignment is highly important in order to avoid inordinate stresses. This latter, hence, is an important field for flexible couplings.

While the use of flexible couplings in long lineshafts would frequently be desirable and productive of considerable benefit in power conservation and in reducing maintenance and repair expenses, conditions are really not comparable and undoubtedly the use of rigid couplings in lineshafts is well justified as a rule, care being exercised that the shafts are initially in line. Flange, compression, clamp and sleeve couplings of the rigid variety can all be used and while it is not the intention to enlarge upon the different constructions, familiar to all mill men, it might be well to review briefly how the all important question of alignment is secured with the various types.

The most commonly employed variety of rigid coupling is probably the flange type with either plain faces or the male and female construction. The former is used almost exclusively for connecting shafts of the same diameter, while the latter is employed for shafts of both the same and different diameters. Each half coupling should be accurately bored and reamed to size for the shaft it is to handle. The respective sections should then be forced to place on the shaft ends and taper keys driven in from the face side.

When plain face couplings are employed for connecting shafts of the same diameter, approved practice is to have one shaft project through its half coupling into the bore of the other half. This insures good alignment of shafts, their respective ends meeting within the solid hub of one of the half couplings. If shafts of different diameters are to be connected, however, the male and female couplings are the more desirable, reasonably good shaft alignment being secured by this construction as well.

Where it is desirable to disconnect a section of lineshaft frequently a separator plate between the coupling halves proves a great convenience. Such separator is usually a plain circular plate simply accurately drilled and reamed for the holding bolts, suitable alignment of shafts being effected by virtue of these longer connecting bolts, supported not only by the webs of the coupling halves, but the interposed separator plate as well. Occasionally, when it is desired to secure additional alignment support when shafts of the same diameter are coupled together, the practice of having the end of one shaft project through its half coupling into the bore of the other half is retained, the separator plate under such circumstances being made in halves for easy removal.

Compression type couplings are also extensively used for connecting up long lineshafts, one popular and the strongest variety is that in which the shell is bored like the frustrum of two cones having one continued axis and individual and conforming cone sections bored to the size of the shafts to be connected. The coupling placed in position, the holding bolts are drawn up tight, forcing the cones together within the shell and intensifying their grip on the shafts. Each cone adapts itself to its individual shaft and being in turn confined by the concentrically tapered shell good and permanent alignment is assured under all conditions. These couplings are used with and without keys, depending upon the severity of the duty imposed, and variations in the sizes of shafts connected does not in any way tend to distort shaft alignment.

The clamp coupling is also frequently employed for lineshaft connections and if well fitted maintains reasonably fair alignment. Straight keys are employed and with this form of coupling severe service is no great handicap, for the construction is exceptionally strong. Where moderate power is transmitted at medium speed, however, the plain solid sleeve coupling proves a very satisfactory device, the attachment and grip of the coupling, in this type of coupling, being effected commonly by several hollow set screws. These retaining screws do not protrude beyond the outer surface of the coupling, so complying with the legal requirements for safety.

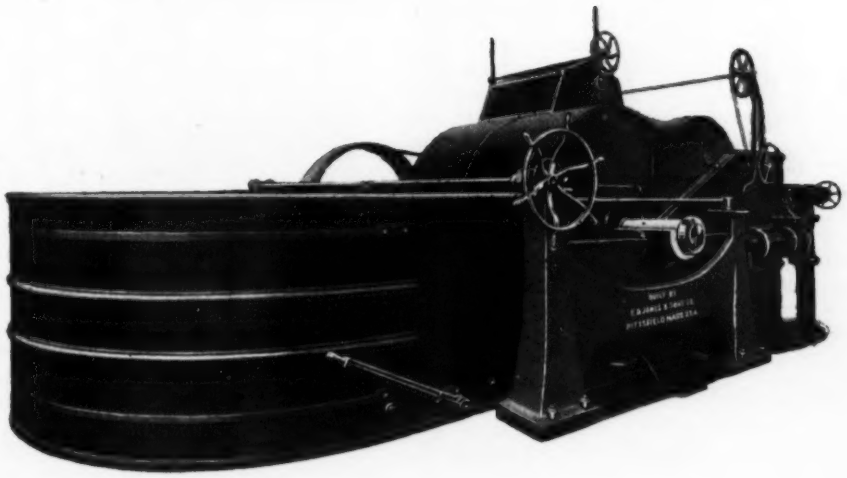
Types of Flexible Couplings

The construction of flexible couplings is somewhat more complicated, naturally, provisions having to be made to minimize transmission of strains and thrust from one shaft to the other and to compensate for limited shaft misalignment. The flexibility characteristic entails accommodation for both limited parallel and angular disalignment and is secured in various ways. An endless belt of pliable tanned leather high in tensile strength and elastic limit is wrapped about concentric rings of steel pins protruding from the faces of the respective flanges of the coupling sections in one variety. In another similar variety, a leather disc with ports for the accommodation of lugs protruding from the faces of the flanges serves as an intermediate driving member. Other couplings employing an intermediate leather disc have lugs symmetrically spaced around such member which engage recesses in the faces of the confining flanges. In still another variety, in general appearance similar to the ordinary flanged rigid coupling, the connecting bolts employed with the latter are replaced by steel pins bushed with rubber sleeves in one coupling section while firmly attached in the other.

There are also various varieties of all metal flexible couplings in which flexible laminated steel pins constitute the driving units and connections between coupling flanges; couplings in which the flange of one section, inside ring, fits loosely under the flange of the other section, torque ring, the drive units consisting of bunches of laminated spring steel on radial axis, fixed in the flange of the inside ring and protruding into cylindrical caps, or

BEATERS BY JONES

A good investment any day—



After all—

You buy Performance!

All our experience and resources are applied to give you—performance on the job.

Scientific in design, sturdy in construction, low in operating and maintenance cost.

E. D. JONES & SONS COMPANY

Pittsfield, Mass., U. S. A.

cages, fitted in the torque ring so that they can roll concentrically with the axis of the coupling and also move endwise through a limited distance in their ports in the outer torque ring. This particular variety of flexible coupling is intended primarily for continuous operation at high speeds, for the transmission of power from motor or turbine to driven pumps, generators, fans, speed reducers, etc.

Another of the all metal flexible couplings, designed to handle fractional horsepowers at speeds of around 1,800 r. p. m., employs as the driving member a flexible spider made up of laminated steel springs in the form of a cross which is engaged by pairs of rigid lugs mounted alternately on one or the other of the faces of the confining coupling flanges. These couplings are flexible in all directions, as well as extensible endwise. A somewhat similar coupling of exceptional strength and intended primarily for slow speeds and heavy torque employs a solid metal intermediate driving member between the flanges of the coupling sections fitted to the ends of the connecting shafts. Continuous lugs cross the faces of the intermediate member and rest in conforming sliding channel sections in the respective flange parts. This double-slider crank principle employed provides freedom for every kind of shaft misalignment.

All these flexible couplings, those depending upon the action of rubber bushings, leather discs and endless leather belts as well as those of all metal construction, are well suited for pulp and paper mill use under certain conditions. No attempt will be made here, however, to offer anything in the line of specifications or recommendations. Suffice to say that there are now available approved flexible couplings well able to care for all legitimate requirements in the well conducted mill and that the use of such couplings will go far to insure uninterrupted mill operation, minimize maintenance and repair expenses in equipment and plant upkeep as well as in that of transmissions. A word of warning may be added, however, to the effect that couplings of all metal construction require systematic lubrication attention, if they are to retain their flexibility and give uninterrupted and satisfactory service. With couplings depending upon other elastic materials for flexibility this is not so, particularly with couplings in which the driving pins are rubber-bushed and consequently should be protected from the deteriorating effect of oil on rubber.

Clutches Present Similar Problems

The present wide and extensive use of friction clutches is, of course, closely related to that of suitable coupling service, for the problems presented are quite similar in that they also have to do with the conservation of power, the cushioning of starting and sudden load shocks and vibrations. In fact, the same requirements for starting and stopping machinery under present day intensive, high-speed operation, without shock or danger of costly interruptions through drive failures, have sharply restricted the legitimate use of jaw clutches and tight and loose pulley drive control, just as they have been instrumental in creating the unprecedented and well justified demand for flexible couplings.

The convenience and economy of the modern friction clutch, mechanical as well as magnetic, have been so marked and the devices possess so many obvious advantages over tight and loose pulley and jaw clutch controls in the transmission of power and in starting and stopping machinery, in truth, that it is hardly necessary to enlarge here upon such evident facts, generally appreciated and conceded. Instead, the reliability of the modern friction clutch can be better demonstrated by the citation of a typical experience with a large clutch controlling the operation of a mill previously unsold on the benefits of such a transmission unit.

Shortly after this clutch was installed, the statement was made, quoting verbatim, "We have not had one minute's trouble with the clutch. No trouble whatever in picking up the load, does not pull the motor out of step, and so far is entirely satisfactory. We have not had to touch the adjusting bolts, in fact have not adjusted anything about the clutch since it started." A month later, "The clutch is still working in the same position—it has not been taken up once." In short, in a period of some eighteen months the only adjustment found necessary was one of a quarter turn on the adjusting bolts.

In view of the fact that when the mill was operating at capacity the clutch transmitted 500 horsepower at 200 r. p. m. and that the starting load varied between 700 and 800 horsepower, this would appear a highly satisfactory performance, though in no way exceptional. By the judicious slipping of the clutch, moreover, the starting load was picked up without causing any reduction in the speed of the synchronous driving motor.

In the installation of these efficient friction clutches, one point may well be stressed and that is when conditions so permit, the clutch proper should be attached to the driven shaft. So installed, the clutch sleeve will revolve on the standing shaft when the clutch is disengaged; whereas, if the clutch is placed on the driving shaft, the sleeve stands idle on the revolving shaft and there is danger of its bore being eccentrically worn.

The efficient and particularly convenient magnetic clutch, being electrically operated and under positive switch regulation from one or more strategically situated control stations, is another variety of disc, or plate, friction clutch. One which has met with pronounced favor in pulp and paper mill services.

The magnet section of such clutches should be mounted on the end of the driving shaft, while the armature, consisting of a circular plate attached to a fixed hub, is connected to the driven shaft. When the magnet is energized, the armature disc is attracted and takes part in the rotation, driving the driven shaft. Collector rings are provided to convey the energizing current from stationary conductors to the rotating magnet. In operation, the operation of the armature is very slight and in order that the magnetic friction grip may release quickly when the energizing current is cut off a non-magnetic material is often interposed between the magnet and armature to prevent sluggishness in release, sticking, due to residual magnetism. The connection of the armature to the fixed hub of the driven shaft is made somewhat flexible to insure uniformity of magnetic grip when the magnet is energized and this adaptable connection has the further advantage of providing the flexibility required to circumvent any slight shaft misalignment.

Modern Couplings Important Factor

In presenting these rather fragmentary notes concerning couplings and clutches, perforce largely of a descriptive character, it is unfortunate that accurate service records cannot also be plentifully cited, for unquestionably the legitimate use of modern and approved couplings and clutches is an important factor in the economical operation of any mill. It would seem, however, that such evidence is rarely, if ever, deemed worthy of record, even by the mills most dependable in segregating and itemizing operating costs. Apparently, even advanced cost accounting is as yet satisfied with maintaining service records only of the larger and more expensive machines, etc., and give little heed to such small items as are presented by clutches and flexible couplings.

Such a situation is natural enough and probably quite sound on economic grounds, so called, but the point which this discussion aims to make is that couplings and clutches when properly used and maintained may exert such beneficial influences that the service records of the larger and more costly service equipment are effected to a marked degree. Comparatively insignificant and inexpensive as these incidental supplies, or items, as they are frequently considered, may be, they can easily effect savings and economies in mill production costs quite out of all proportion to the cost of installing the items.

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LOCKWOOD'S DIRECTORY of the PAPER & ALLIED TRADES

CORRECTED UP-TO-DATE

The 55th Consecutive Annual Edition

THE OLDEST INDUSTRIAL DIRECTORY IN THE UNITED STATES

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LEGITIMATE BUSINESS SOUND

According to report reaching the PAPER TRADE JOURNAL the severe break in the stock market during the past week or two has caused no serious reactions in the representative pulp and paper centers throughout the country. While the impression prevails that there may be a slight pause for a time, legitimate business will soon be on an even keel again and will round out, on the whole, one of the most prosperous years in history.

Now that the stock market crisis has passed, constructive elements in general business lines should come into play, says the monthly business review of *The American Bankers' Association Journal.*

"The tornado of stock speculation that struck the security markets during the last month has severely shaken the American speculative structure," the review says. "Now that the crisis has been passed and the fallen debris has been cleared up it can be seen that the underlying foundation is still sound and that the principal damage done by the storm was to tear away the superstructure that had become topheavy through over-extended credit.

"The runaway bull market of the last several years seems to have ended. The day of easy profits without labor has passed. Trading on margin has not proved the royal road to wealth.

"Numerous constructive elements now enter the business picture. A genuine bond market promises to return. Building construction should revive as funds are again available for purchasing real estate and mortgages. Commercial enterprises should be stimulated with the burden of high interest rates removed. Foreign loans can again be sold to provide credits with which to build our export trade. Men and women will for some time to come pay more attention to business and less to stock tickers.

"While the immediate effect of the stock crash can be to curtail purchasing power somewhat for merchandise outside the range of necessities, a broad analysis will show that the ultimate result should be highly beneficial. Many individual holders of stocks have lost heavily, but America is noted for its rapid 'come-back' after any disaster, and this should be no exception.

"An examination of the major industries shows that they are practically all in a sound condition, operating actively yet conservatively. Trade continues to run in large, though not record-breaking, volume, and no doubt sales for the full year 1929 will show normal growth over last year. Federal Reserve Banks and member banks are in a strong position. Earnings are making an excellent showing for manufacturing and merchandising companies, railroads and public utilities, a tabulation of approximately 600 reports for the first nine months showing an increase of 18 per cent over the corresponding period of last year.

"Concurrent with the decline in the stock markets there was a genuine revival of interest in the markets for seasoned bonds and the easier money rates now prevailing should encourage the flotation of fixed-term issues, many of which have been held back until the financial markets turned back toward normal and quieted down. In the past month, however, the number of new offerings was unusually small.

REFORESTATION IN NEW YORK

Reforestation activities in New York State this year broke all previous records in reaching a total of 25,305,000 trees planted. This number exceeded last year's mark by over 3,000,000 trees and is the largest number ever planted in reforestation projects in any one year. Included in the total are 1,600,000 trees planted in state forest areas under the provisions of the new Hewitt law which was enacted last spring.

Within a few months after the enactment of this law the Conservation Department had acquired upwards of 6,000 acres of land and as it was not possible to buy any of this land for spring planting the first plantations were made during the month of October in Cortland, Chenango and Otsego counties. Nearly a million trees were planted in Otsego county and three-quarters of a million in Cortland and Chenango counties. Plantations on state land this year were just about double 1928 and amounted to 9,135,000 compared to 4,526,000 the previous year. Nearly 2,000,000 trees were also planted in the state game refuges.

In municipal forestry projects plantations this year reached the high total of 3,424,000 trees which was a considerable increase over last year. Planatations made by industrial concerns increased from 1,561,000 in 1928 to 2,013,000 this year.

Plantations in school forests amounted to 182,000, the Boy Scout plantations totaled 81,000, and plantations made by miscellaneous organizations amounted to 1,309,000. Farmers and individual land owners made plantings amounting to 9,158,000 trees.

For next year preparations have been made for the planting of 20,000 acres in new forest areas under the Hewitt law provided it is possible to prove title to that amount of land in time. Two new nurseries have been laid down in preparation for this enlargement of the reforestation program and 35,000,000 three and four year old transplants will be ready for distribution in time for the spring planting season. The two new nurseries are located in the central part of the state in order to facilitate shipments to the southern and western portions.

Next year will be the first complete year under the new law providing for the planting of productive state forests and from now on it is expected that these will take the major portion of the output of the nurseries as under the plan proposed the demand for trees for reforesting these new areas will increase steadily from year to year until a maximum of 75,000,000 trees for this purpose alone will be required.

Menominee Mill Gets Safety Award

MARINETTE, Wis., November 11, 1929.—The benefit association of the Menominee mill of the Marinette and Menominee Paper Company gave a dancing party at Bay Shore Park, at which the feature of the evening was the presentation of the plaque, won by the Menominee mill, for the best no accident record among fifty-eight mills in the United States and Canada. This plaque was the award which was made to the Menominee mill by the National Safety Council at Chicago, on October 4, 1929. The contest, for which the Menominee mill won this notable award ran from January 1 to June 30, 1929. During this period the Menominee mill had no lost time accident.

The plaque was formally presented to Ben Ferris, president of the Menominee mill benefit association by W. W. Hinnenthal, general manager of the Marinette and Menominee Paper Company. Mr. Hinnenthal spoke of the importance of safety work and how it not only depended on the importance of safety work and the attitude and policy of the company but stressed the fact that it was necessary for every employee to cooperate if safe conditions were to be assured. After Mr. Hinnenthal's talk he handed the award to Mr. Ferris, who responded briefly, expressing gratitude and the great pride with which they received the distinction.

Then Mr. Hinnenthal introduced P. J. Sievert, general superintendent, who expressed the appreciation of the company for the safe mindedness of the employees. He also brought out not only the appreciation of the company but showed how much more pleasant it was from the standpoint of the employee's home and community to know that the men would return to their homes after a safe day's work, in such a condition that they could enjoy the pleasures of the home and community unhampered.

Mr. Hinnenthal next introduced A. G. Stone, general manager of the Continental Paper and Bag Mills, at Rumford, Me., formerly superintendent of the Menominee mill. Mr. Stone spoke of the seven and a half most pleasant years of his life which were during the time he was located here. He further mentioned that it was with pride that he could go back to Rumford knowing that he was superintendent of a mill for seven and a half years which had won first place among paper mills in the United States and Canada. In concluding Mr. Hinnenthal spoke of the fact that the Menominee mill of the Marinette and Menominee Paper Company was the first mill in the state of Michigan to win the high honor of being national champion in paper mill safety work.

Dr. L. C. Fleck With Kimberly-Clark

[FROM OUR REGULAR CORRESPONDENT]

MADISON, Wis., November 11, 1929.—Dr. Louis C. Fleck, chemist in the section of Derived Products at the U. S. Forest Products Laboratory, left the laboratory November 1 to join the research staff of the Kimberly-Clark Corporation at Kimberly, Wis. Dr. Fleck will be in charge of organic chemical research at the Kimberly plant. He will make his home in Appleton.

Mr. Fleck graduated from the University of Wisconsin in 1917 and received his M.S. and Ph.D. degrees at the same institution in 1923 and 1927. He joined the Forest Products Laboratory staff in 1921 and was assigned to research in the chemistry of wood. He followed this line of investigative work up to the time of his resignation.

Brotherhood To Have Another Election

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., November 11, 1929.—Another election to elect a president of the International Brotherhood of Papermakers has been deemed necessary and voters of the organization in this country and Canada will once more go to the polls during the last two weeks in November. It was decided to hold a second election when the recent contest showed that none of the candidates for the office had polled a majority vote and the same condition holds true for the sixth vice-presidency where the voters will select either Oscar Benoit, of Shawinigan Falls, Quebec, or E. O. Kelly, of Sault Ste. Marie. The second election was predicted several days ago as the board of canvassers neared the end of their task of tabulating the votes. Although the board of canvassers will not complete its tabulation and report until late this week the result of the recent election was already apparent as only a few votes remained to be canvassed of those cast by the Troy local and also the tabulation of another small local, the vote of which had been protested by Jeremiah Carey, one of the three candidates for the presidency.

The tabulation of the vote for the presidency reveals that Matthew Burns of this city, has received slightly over 1,300 votes while Jeremiah Carey, seeking to stage a comeback, received in excess of 800 votes. William R. Smith, the present incumbent, received about 650 votes. Mr. Carey was heavily supported by the locals in Felts Hills, Hudson Falls and Iroquois Falls besides picking up votes from many other mill towns which piled his total to a point that gave him second place in the running and made necessary the second election. Archie Hook, of Chicago, won over J. H. Noonan, of Glens Falls, for the office of treasurer by about 300 votes. He is the present incumbent. Arthur Huggins, formerly of Holyoke, had no opposition for re-election as secretary and the same holds true for David Larner, of Tonawanda, who was re-elected auditor.

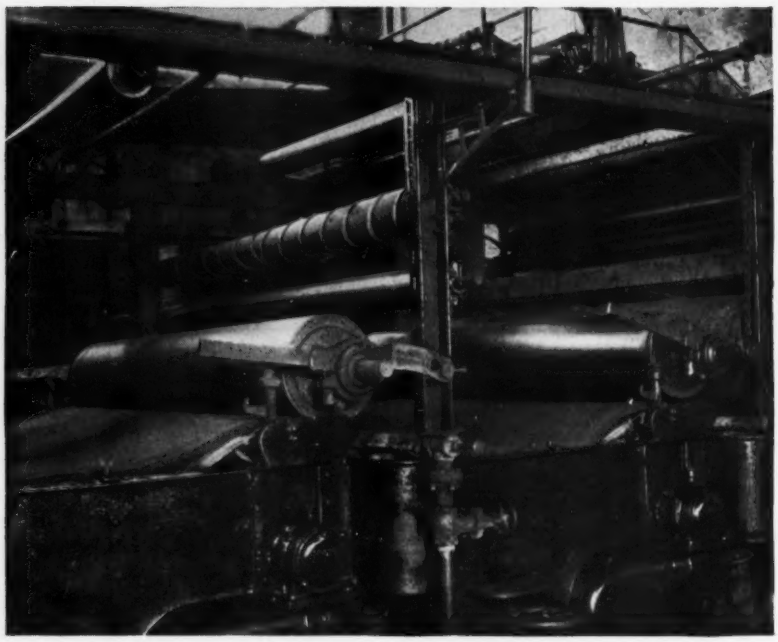
Frank P. Barry and Matthew J. Burns were elected delegates to the A. F. of L. convention, defeating Jeremiah Carey and William R. Smith. A. F. McLeod, of Three Rivers, was named delegate to the Dominion Trades Congress without opposition. For the first vice-presidency there was no opposition to Frank P. Barry and for second vice-president George J. Schneider, of Appleton, Wis., was re-elected by a vote of over 400 over Charles Murtaugh, of Iroquois Falls, Canada. Joseph Addy, of Troy, had no opposition in his campaign for third vice president and was re-elected. The same situation prevailed for fourth vice-president where A. F. McLeod was re-elected while John W. Bailey, of Holyoke, was elected to the office of fifth vice-president. E. B. Lambton, of Gouverneur, failed to poll sufficient strength for the sixth vice-presidency to warrant his name being coupled with that of Oscar Benoit, of Shawinigan Falls, P. Q., and as a result both Mr. Lambton and Eugene Cot, of Iroquois Falls, have been eliminated for the second ballot and the choice will be made by the voters between Mr. Benoit and Mr. Kelly.

The work of preparing the ballots and tally sheets for the second election will be rushed during the next few days in an effort to have these supplies in the hands of all locals before November 15. This means that supplies will have to be shipped to the far west as well as some of the far removed mill towns of Northern Canada.

Plans Discussed For Pulp Mill

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., November 8, 1929.—Nelson S. Coombs, president of the Fiscal Engineering Company of Chicago, and C. E. Nelson, consulting engineer and vice-president of O'Keefe Orbison Engineering Company of Appleton, Wis., met with stockholders of the Pacific States Pulp and Paper Company at Priest River, Idaho, late in October. The feasibility of constructing a pulp mill was discussed. A finance committee was appointed to underwrite $50,000 by November 2 and if this amount is raised work on the site will start soon.



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Edited by
RONALD G. MACDONALD, Secretary

The Whiteness of Paper*

By L. Blin Desbleds

The selling price of paper very often depends on the degree and quality of its whiteness. This is, of course, especially true with regard to the extra-fine and fine grades. In the case of the cheaper grades the papermaker finds himself, as is well known, obliged to resort to certain artificial color treatments which give his products as white an appearance as may be.

It is a recognized fact that there is a wide variation in the color of so-called white papers. Indeed, some white papers are yellow-white, and others, though less common, green-white. These color tones, which are of a more frequent occurrence with chemical wood papers, are usually due to insufficient cooking or insufficient bleaching, or both, or to the improper handling of the pulp during the bleaching process. There are also red-white and blue-white papers, generally produced by the addition of red or blue dyes to overcome the natural yellowish or greenish tones of the pulp. Not all red tones, however, are due to the addition of a dye, since pulp from certain trees have a natural and decidedly reddish color.

From the standpoint of the physicist, the impression called "white" is the effect produced on our retina by a cumulative action on which arises from the simultaneous superposition of the electro-magnetic radiations of various wave-lengths of the solar spectrum; and, consequently, any material is commonly said to be white when it reflects, highly and with little selectivity, to our visual organ, all the component hues of the spectrum. In papermaking, white is the natural state of the coloration of certain materials employed or it is the degree of whiteness of certain products artificially obtained by the processes of bleaching, calcination and purification.

Shades of White

Dissimilarities in the whiteness of various papers are caused not only by slight color variations due to small differences in the quality of the light rays, or wave lengths of the electro-magnetic radiations, which they reflect diffusely, but also by the proportion of the incident light which they reflect as a whole. Pulps and papers which reflect a relatively large proportion of incident light are more intense in whiteness than those which reflect a smaller amount and which have thereby the appearance of a "dirty white" or gray.

The appreciation of the whiteness of a paper demands, therefore, a double valuation: (1) An estimation of the exact color composition of the whiteness and (2) a determination of the intensity of the whiteness apart from its color composition.

It is the acknowledged experience of papermakers—an experience fully confirmed by tests, made specially for the purpose, by the U. S. Bureau of Standards—that the methods used, until now, to grade paper whiteness are far from being satisfactory, because of the variation of the human eye in the perception of light and color and of the confusion which arises from verbal descriptions of color and light sensations. The desirability is, therefore, admitted on all sides for a system of color grading and measurements which eliminates personal factors and gives a numerical value to any variation from a chosen standard.

From the fact that a complete and true estimation of the whiteness of a given paper demands, at the same time, an exact analysis of the tint of its whiteness and an accurate measurement of the intensity of its whiteness, it follows that the simplest and most precise way of defining the degree and the quality of whiteness possessed by a paper would be the one which would simultaneously express the value of both intensity and color composition.

Photo-Electric Colorimeter

On behalf of a number of British paper manufacturers, the author of this short study has recently carried out numerous tests with a new apparatus—the photo-electric photo-colorimeter—which has enabled him to measure simultaneously the intensity and color composition of the specimens of white paper submitted to him; and in each case the results were expressed by numerical values obtained with reference to a fixed standard and independently of any eye estimation.

The white standard chosen was barium sulphate, or baryta, which is absolutely colorless, opaque, and does not alter in the air. Baryta is a substance which can be easily obtained anywhere with always the same degree of purity. It is always perfectly white and can therefore be safely taken as a reference substance or standard.

The Color Curve

The results of each of the tests were translated into a curve drawn with reference to two rectangular axes. One such curve is shown in the accompanying illustration. The abscissæ of the curve, drawn with reference to barium sulphate as a white standard, denote the colorations (or hues), in wave lengths, of the six typical zones of the solar spectrum. The ordinates indicate the intensity of the reflected diffusion with regard to each one of the same zones of the spectrum. The white standard (barium sulphate) is, in each of the radiations, given a value *100* and the intensity of each radiation is obtained from the curve as a per cent.

* Worlds Paper Trade Review, August 30, 1929.

of white; and this because a color is always derived from white by the absence of a more or less large number of radiations.

Such a color curve as the illustration shows gives very interesting data with regard to the whiteness of the paper to which it refers. First of all it pictures to us exactly the color composition of the white in question relatively to that of the standard (barium sulphate). Thus, if we examine the curve in the illustration we find that the white of the sample tested contains, with regard to barium sulphate, *82 per cent* of violet, *86 per cent* of blue and *87 per cent* of green, yellow, orange and red. Compared with the pure white of barium sulphate, the white of the paper specimen tested is therefore somewhat deficient in the violet-blue radiations.

Again, since the color curve of the specimen lies between the *X*- or *zero-axis* (which denotes the pure black or an intensity of radiation equal to *zero* in all the hues) and the *100-horizontal line* of the standard (which denotes an intensity of radiation equal to

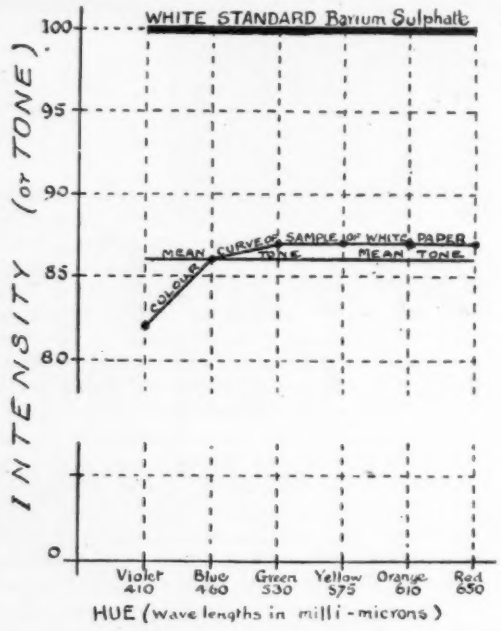

Diagram giving color curve of a sample of white paper which analyses the color composition of its whiteness and showing the intensity of whiteness, or the position between absolute black and the pure standard white

100 per cent in each of the hues), it is clear that the intensity of the whiteness of the specimen is less than that of the standard (barium sulphate) and is only a certain percentage of it. The actual value of this percentage is very easy to determine. It is simply the average, or mean, of the various individual intensities. The mean intensity, relatively to barium sulphate, of the whiteness of the specimen of paper to which the curve of the illustration refers is $\frac{1}{6}\ (82+86+87+87+87+87) = \frac{1}{6} \times 516 = 86$. In other words, the whiteness intensity of the paper is 86 per cent. that of barium sulphate.

Thus it is that the color curve of a specimen of white paper gives, at the same time and in accurately measured figures, both the color composition and the intensity of the white in question. And these figures, having been obtained from a curve based on data furnished by a delicate, reliable and yet simple apparatus—the photo-electric photo-colorimeter—are entirely free from any errors which may arise from the uncertain working of the human eye or from any other personal factors.

And, to complete this short study, it may be well to add a few words regarding the principle of the photo-electric photo-colorimeter, which, as already mentioned, was used for the whiteness tests here outlined.

The photo-electric photo-colorimeter is an apparatus which has only recently found its way into industry. For light and color estimation a sensitive photo-electric cell takes in it the place of the human eye. The photo-electric cell—sometimes called an "electric eye"—consists essentially in a glass bulb containing argon at a low pressure, and having on its inner surface a layer of potassium. There is hung inside the bulb, at a short distance from the potassium, a tungsten ring. The potassium terminal is connected to the negative pole of an electric battery and the tungsten terminal to the positive pole. In the circuit thus formed a galvanometer is inserted.

Under the influence of a beam of light directed on the cell the potassium emits electrons which cause the intensity of the current in the circuit to vary instantaneously. And since such variations are proportional to the light energy acting on the cell, the galvanometer placed, as we have seen, in the circuit containing the cell, becomes a true and exact photometer. The human eye is entirely eliminated from the measurements, since it suffices to register the displacement of the galvanometer mirror to know the magnitude of the light which has acted on the cell.

A color curve being fixed, as we know, by points which give the value or intensity of the violet, blue, green, etc., which enter into the composition of the color, it suffices, in order to determine such points, to place successively violet, blue, green, etc., screens or monochromatic filters of known wavelengths between the source of light and the specimen to be tested, and to cause in each case the light reflected by the specimen to act on the cell.

In order that the measurements may be made with reference to a definite standard two galvanometer readings are taken with each filter, one with the standard and the other with the specimen. The ratio of these two readings expressed as a per cent of the standard reading gives, in the case of each definite hue, a point on the curve. The apparatus is, of course, so designed that the various operations needed are carried out almost automatically and very quickly.

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Jacob Dahl, chemist, Canadian International Paper Co., Hawkesbury, Ont.

Austin Ely, research chemist, Kimberly Clark Corporation, Neenah, Wis.

Hans Heller, mechanical engineer, Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.

Hans Gottstein, general director, Feldmuhle Papier & Zellstoffwerke A.G., Konogstr 6, Stettin, Germany.

Henrik Grinstad, superintendent sulphate and board plants, Brompton Pulp and Paper Company, East Angus, P. Q.

W. H. Kraske, sulphite mill superintendent, Port Alfred Pulp and Paper Company, Port Alfred, P. Q.

Albert Kung, chief chemist, Cellulosefabrik Attisholz, Solothurn, Switzerland.

J. E. Patterson, manager of operations, Abitibi Power and Paper Company, Iroquois Falls, Ont.

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Paper Activities of the Bureau of Standards *

By B. W. Scribner[1]

Any description of a particular function of the Bureau of Standards is not complete without an outline of the functions and organization of the bureau as a whole. This is because the various activities of the bureau are closely inter-related. The paper section deals particularly with technical problems related to the manufacture and use of paper. But the solving of these problems is very often done in cooperation with other parts of the bureau which specialize in particular phases of the problems. For example; studies of paper thickness micrometers were made in cooperation with the gage section, the electrolytic section assisted in investigation of anti-tarnish papers; the advice of the heat-resistance section is sought when weather resistance properties of building papers are concerned, and so on.

National Standardization Agency

The bureau as the national standardizing agency of the Government, necessarily deals with a wide variety of scientific and technical subjects, directly related to the industrial life of the nation. Its activities cover all classes of standards—weights and measures; constants, such as mechanical equivalents of heat and electricity; qualities, which include specifications of materials; performance, such as operative efficiency of machines; and practice, such as safety codes. The bureau is organized into two groups of divisions, one of which deals with research and testing, and the other with commercial standardization. These two groups are divided into fourteen divisions. The names of the divisions indicate the scope of the bureau activities. Those composing the research and testing divisions are electrical, weights and meansures, heat and power, optics, chemistry, mechanics and sound, organic and fibrous materials, metallurgy, clay and silicate products. In the commercial standards group we have simplified practice, building and housing, specifications and trade standards. Each of the research and testing divisions is further divided into a number of sections. For example, the fibrous and organic materials division is composed of four sections dealing with rubber, textiles, leather and paper. There are 65 sections in all. This outline of the activities of the bureau and its organization is indicative of its facilities for effective study of a wide range of industrial problems, and most industrial problems are more or less related to each other.

Semi-Commercial Manufacturing Plants

In order that it may have first hand information on manufacturing processes, in addition to its facilities for laboratory studies, the bureau has a number of semi-commercial manufacturing plants. It can make in an experimental way, paper, textiles various ceramic products, metal castings and so on.

The bureau acts as a testing laboratory for the Government and to some extent for the public. In the latter case only certain classes of tests are made. They are restricted quite largely to such tests as are not made by commercial laboratories and to referee tests.

Cooperates With Industry

The commercial standards group of the bureau cooperates with industries at their request in establishing standards to assist in elimination of waste. In this work, the bureau acts as a coordinating agent and in an advisory capacity, the standards themselves being formed by members of the industry and adopted by their voluntary agreement. Paper standards of this kind have been established for a variety of products such as asbestos paper, grocers' bags, box board, tissue paper, bank checks, binders board, composition books, and wall paper. There is an increasing demand for this service from the paper industry. At present standards for paper shipping tags, photographic paper, and container adhesive tape are in process of formation.

In line with its policy of close cooperation with industry, the bureau established its Research Associate plan. This permits industrial organizations to place men in the bureau to assist in intensive studies of problems having particular interest to them. Such men utilize the bureau's facilities, work cooperatively with members of the bureau's staff, and have the same status as the staff members except that their salaries are paid by the supporting organizations. The last annual report of the bureau lists eighty-seven research associates, with forty-eight supporting organizations. Besides this provision for the more extensive projects, arrangements are made, when facilities are available, for investigators to enter the bureau for short periods, to use its equipment or to observe some of the work in which they are particularly interested.

Cooperates by Means of Correspondence

In addition to the activities outlined, an important way in which the bureau cooperates with the public is by means of correspondence and personal contacts. It acts as a clearing house for information. Through its cooperative contacts with industrial and other organizations, in addition to information secured from its own researches and testing, it accumulates a large and varied fund of information which is available on request. It it does not have information on a certain inquiry, in many cases it makes a short study of the problem in its laboratories and later renders a report that may help to clear up the matter. Personal contact is the most satisfactory way of keeping in touch with the bureau activities and this is welcomed as it has been found mutually advantageous. The research information secured by the bureau is published in the several bureau publications and in outside journals.

The Paper Section

Like the other technical sections, the paper section deals with research and testing. As a paper testing laboratory for the Government, it tests some 2000 paper samples annually, these being largely papers delivered to the National Government. Considerable Government research is also done. Its research is largely, however, concerned with industrial paper problems, and consists of technical standardization of paper and paper-making materials and processes. The work on paper standards includes studies of optical, microscopical, physical, and chemical testing, and development of specifications of quality. Following is an outline of the recent researches and those proposed for the near future.

Paper Testing Methods

Research is made on paper-testing methods for the purpose of improving the performance of testing instruments and to assist in the standardization of test methods. The results of the bureau's researches on paper testing standards is made very effective through close cooperation with the bureau by the Technical Association of the Pulp and Paper Industry in the development of its official paper testing methods. These methods are accepted generally as standards.

The bureau's services relative to checking the accuracy of paper tests made in industrial laboratories is in large demand.

Some of the accomplishments during the past year follow. At the request of a manufacturer of a bursting strength tester,

* Presented at fall meeting of TAPPI, Richmond, Va., Sept. 26, 1929.

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who was putting an improved model on the market, a study was made of several variables present in the usual form of tester, which led to several improvements in the design of such instruments that increase considerably their accuracy. Information obtained on inks used for testing the absorbency of blotting papers assisted in further improvement of the testing technic for such papers. Study was made of methods related to determination of paper permanence, such as the heat test used as an accelerated aging test, fading on exposure to light, and determination of the cellulose constituents of paper fibers. The results served as a basis for choice of procedure to use in bureau research on permanence of papers. Further study of the Schopper folding tester developed additional information on improved ways of calibrating and adjusting this instrument. The opacity tester developed by the bureau is now in common use in the paper industry. The bureau's calibration of this instrument is usually requested before it is put into use. During the past year over twenty of them were calibrated and frequent checks were made to assist users in obtaining correct results with them. This work developed recommendations which effected improvement in the photometer part of the instrument. Cooperative tests were made with various sub-committees engaged in developing official paper testing methods of the paper technical association. These were in reference to methods for fiber composition, starch, paraffin, acidity, water resistance, grease resistance, and bulk. The method developed by the bureau for bulk determination was incorporated into an official association method. Assistance was given the American Society for Testing Materials in its development of test methods for electrical insulating papers and roofing felts.

More Attention to Basic Problems Proposed

In addition to the type of work outlined above, more attention to basic problems is proposed. The nomenclature of paper testing is confused and misleading and effort to standardize it will be made. Also listed are fundamental studies related to determination of wearing qualities of paper such as finding what actually occurs within the paper when it fails in service, and study of various theoretical considerations relating to physical stresses. Such studies will assist in developing improved test methods as the present test methods used for this purpose are all empirical.

Standardization of Paper

The development of quality specifications for paper is carried on in cooperation with Federal Government organizations, and outside organizations such as trade associations and technical and scientific organizations. Such development work, in the paper section of the bureau, involves usually considerable testing and experimentation. Current products must necessarily be tested to have a basis for detailed requirements, and in many cases special test methods must be devised.

Assistance is given in the development of Government paper specifications. This includes services on specifications committees and laboratory development work. The development of a Federal specification for fiber wall board was completed and a report of the research made on this material was prepared for publication. An article was issued which deals with the requirements of mailing envelopes in respect to both processing and service. Experimental laboratory tests of the strength, water resistance, and air permeability of sheathing papers were made to assist the National Lumber Manufacturers Association in formulating standards for this building material. In cooperation with two industrial organizations, research on the permanence of paper was made. Commercial papers representative of the various grades of fine writing and book papers were examined for their permanence values, test methods for this purpose were studied and improved, and considerable assistance was given various interested parties in the development of more permanent papers, and in the selection of such papers for specific uses. A cooperative investigation with the Bureau of Engraving and Printing on improvement of quality of postage stamps was initiated at the request of the Secretary of Treasury. This includes a study of both materials and processes, and information of considerable potential value has already been developed. One complete printing, gumming and drying unit is being used for experimental purposes. Installation of temperature control and increased circulation of air in the drying section had a beneficial effect on the strength of the stamps and their adhesion. A device for controlling the tension of the paper, which is printed wet, prevented undue distortion of the paper and decreased the spoilage in the perforating operation. The quality of the paper and the stamps is being tested by the bureau regularly.

In addition to the continuing work indicated above, expansion of the research on permanence of paper is in progress, as there is urgent demand from a number of sources for more authentic information of this kind. Papers are being made in the bureau paper mill so that their complete history will be known and tests of them will be made to obtain more definite information on various permanence qualities than can be had by testing commercial papers. Fundamental studies related to the constitution of celluloses and to their reactions to deteriorating influences are to be initiated. These are expected to assist in more accurately predicting the life of a given paper and in overcoming influences found to be harmful.

The Lithographic Technical Foundation, an organization consisting of 411 concerns representative of lithographers and lithographing material manufacturers, has urgently requested the bureau to cooperate with it in a study for the purpose of standardizing offset papers. The offset printing process has made great strides but its most efficient application is hampered by a lack of knowledge of the paper qualities required. It is planned to undertake the research desired if sufficient funds can be secured for the purpose. Also, the research on permanence of paper will probably be continued.

Paper Manufacturing Processes

Studies are made with semi-commercial paper-making machinery for the purpose of increasing the efficiency of the commercial processes in use and developing improved processes. It is not feasible to make such studies in commercial mills as they would seriously affect production and as the processes cannot be controlled on a commercial scale in such a way as to obtain sufficiently accurate data.

Considerable attention has been given to developing equipment and procedure for evaluating on a laboratory scale the paper-making quality of fibers. Such equipment is necessary for preliminary tests of proposed fibrous materials as results can be secured in this way, with a minimum of time and amount of material, which serve to indicate whether semi-commercial tests should be proceeded with. Satisfactory equipment was developed and a description of it together with the manner in which it is used is ready for publication. Progress was made in comparing the quality of a newly-developed American coating clay with the standard English clays. A publication was issued, which gives the results of paper-making experiments on the use of low-grade waste materials, such as old newspapers and sawdust, for making roofing felts. These experiments showed that as far as the manufacturing processes are concerned, there was no difficulty encountered.

During the ensuing year, the study of coating clays will probably be completed. Along with this work, is planned some study of the use of starch products as the adhesive for mineral coatings. There is considerable interest in information of this kind owing to the great price differential between starch products and casein. The latter is largely imported and an increase in its import duty is proposed. This would further increase its cost.

Fibrous Raw Materials

Pulp and paper manufacturers are constantly searching for new fibrous raw materials, to secure new or improved qualities in papers, to replace more expensive materials, or to substitute for materials where continued supply is uncertain. The bureau is called upon continuously to furnish information of this kind and in order to have first-hand information, it is continually studying fibrous raw materials, particularly plant products that are at present wasted. The use of our paper-making equipment is an essential part of this work.

Commercial attempts to utilize constalks and bagasse for manufacturing fine-paper pulp were closely followed by frequent tests of the pulps and papers produced. There was considerable demand for information on these projects. Studies were continued of the paper-making value of rayon thread, which is now often found inter-mixed with other threads in paper-making rags. The paper-making tests of such material, which were completed, show that this material not only has no paper-making value but is actually detrimental to the quality of paper. At the request of the Director of the New Zealand Laboratories, preliminary paper-making tests were made of New Zealand flax. This material is used for making cordage, but it is being supplanted in this use by other materials, and a new market for it is desired. The results of the tests are so promising that semi-commercial paper-making tests will be made as soon as an additional supply is received from New Zealand.

In addition to completion of the study of New Zealand flax, some studies of the paper-making qualities of various waste land products are planned. Such materials as constalks, bagasse, and straw will be included in this work, which will probably extend through the following year.

Paper Currency

The improvement of the quality of the United States paper currency was undertaken at the request of the Bureau of Efficiency, and in cooperation with that bureau and the Bureau of Engraving and Printing. The main achievement so far is the development of an improved type of currency paper, which has been put into commercial production successfully, and which costs less than the paper previously in use.

During the past year, considerable additional attention was given to the commercial development of the type of currency paper developed by the bureau, and which has been adopted by the Treasury Department as the standard paper for this use. Cooperative work in this direction consisted of studies of the commercial paper-making operations, thorough laboratory tests of various commercial experimental papers, and close observation of printing tests of such papers in the Bureau of Engraving and Printing. This resulted in additional improvement in the quality of the commercial papers, and furthermore this cooperative work has stimulated competition for the currency paper contract. Studies were also made of the paper currency manufacturing processes. This included particularly the plating and surface-sizing processes. Further information was developed on the use of various materials for treating the surfaces of bills to make the surfaces more resistant to abrasion and soiling. This work included actual treatments of currency specimens on a semi-commercial scale and tests of the products in the laboratory and in some of the actual manufacturing operations.

During the present and following year, in addition to researches such as outlined above, a study will be made of the paper-making qualities of lower grade fibrous raw materials than the new rags used at present for the currency paper. Information of this kind will be of value in case the supply of such rags is interrupted. The drying of paper currency, which is a part of the printing process, is also listed for study.

This description indicates the kind of services, particularly those related to paper, which the bureau renders. It is hoped that it will assist in promoting a fuller use of these services by the paper industry.

Wax Sizing Compositions

By Joseph Rossman[1]

A large number of wax sizing compositions for paper have been patented in this country. The important ingredient of these compositions is wax or paraffin which waterproofs the paper. One of the older patents No. 46,466 issued in 1865 was a mixture of paraffin and rubber for waterproofing the paper. A large number of solvents and vehicles for the wax, such as turpentine, gasoline, naptha, and benzine have been suggested. Other waterproofing materials have also been mixed with paraffin such as rosin, stearin, and gilsonite.

Considerable difficulty is encountered in applying paraffin wax in a thin uniform layer on the paper, more particularly when the paper is in large sheets or in a web. Either a thick layer will be applied or a layer which is not of uniform thickness.

An illustration of wax compositions is given in a recent patent number 1,266,955, issued to Kniffler on May 21, 1918.

The composition consists of a liquid ammonium soap composed of stearic acid, stearin or equivalent, emulsified with an unsaponifiable substance, as paraffin and diluted with water. The composition is applied to the paper in liquid form, after which the water is evaporated, leaving ammonium stearate and paraffin, or their equivalents, as a thin uniform layer on the paper. The composition is made by saponifying stearic acid under pressure by ammonium hydrate at a moderately high temperature in a closed vessel in the presence of water, and emulsifying the paraffin with the ammonium soap thus produced, and adding water to the emulsion, thus producing a liquid composition, which is ready for use. The composition may be composed of say 50 pounds of commercial stearic acid and 50 pounds of paraffin wax and 20 pounds of ammonium hydrate and water. The stearic acid is saponified and the paraffin is emulsified with the saponaceous solution. More water is added subsequently as a diluent to make the emulsion say 10 per cent solid. This composition is applied to the paper by passing the paper through a tank containing it, and then the paper is passed over drying cylinders or heated rolls, thereby to evaporate the water and decompose the ammonium soap, eliminating the ammonium, and leaving a thin layer of stearic acid and paraffin uniformly deposited on the paper, which renders the paper substantially impervious to water.

Paraffin and Gilsonite

Another recent patent number 1,396,527 to Richter and others dated November 8, 1921 describes a composition which consists of a compound of hard natural asphalt, praffin, and a suitable fixed oil, such as petroleum oil. For example, ingredients are mixed in the following proportion by weight:—gilsonite 40 to 50 parts, paraffin 35 to 50 parts and mineral oil 10 to 15 parts. These ingredients are placed in a suitable receptacle and are heated until the gilsonite is molten, and are thoroughly all intermixed. On cooling, they form a hard mass, having a melting point of about 130 to 140 deg. F., which in thin layers is more or less flexible, not sticky or adhesive. A suitable volatile solvent, such as benzol, toluol, xylol or the like, may be employed therewith to form a paint for coating surfaces to be protected against moisture. By

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melting the mass, it may be used as a bath in which fibrous materials may be immersed for saturation or impregnation.

In the composition, the presence of paraffin greatly reduces its viscosity or increases its fluidity, when solved by heat, and moreover reduces the melting point of the composition. The proportion of paraffin may be increased or diminished in accordance with the use to which the composition is to be put or the density or porosity of the fibrous material with which it is to be impregnated. The presence of the oil likewise lowers the melting point of the composition and prevents its hardening into a brittle or crystalline mass. The presence of gilsonite is desirable because of its waterproofing qualities, its high melting point, and the possible presence of any fine carbon particles. As a result of the admixture and blending of the three ingredients, there is secured a homogeneous non-sticky and wax like product, at ordinary room temperatures, but which may be rendered highly fluid or relatively nonviscous when heated to relatively low temperatures.

Paraffin and Purified Resin

According to patent number 1,204,149 issued to Gelertsen on Nov. 7, 1916 a composition has been found which serves as a waterproofing medium and comprises resin and paraffin or other hydrocarbons. The resin itself gives a brittleness to the composition and as in some forms it is quite sticky it can be relied upon to impart to the composition the gluing effect desired. Fresh or natural resin by itself would be too sticky and the paraffin or other hydrocarbon is added to reduce to a proper degree the adhesiveness of the resin. In case the mixture of resin and paraffin is too soft carnauba wax can be added. The proportions which are found to be practical comprise resin approximately 74 to 75 per cent, paraffin not over 25 per cent and carnauba wax which may be added runs from about ½ to 1 per cent. It will therefore be observed that the major portion of the composition is resin.

One feature of this composition when applied to one side of a paper is that it is quite sticky, while the other side of the paper, although fully waterproof, will remain practically non-adhesive.

One of the objects of the invention is to produce resin in such purified form that objectionable odors or taste will not be emitted therefrom to the contents of a container when the resin has been included as a componet part of the waterproofing composition, and one of the features of this invention is to remove such impurities out of resin that cannot be extracted by mechanical means, such as filtration, distillation, etc., without impairing the quality of the resin.

The desired end can be attained and is based upon the fact that turpentine, resin oil and other impurities that give the resin a certain odor and taste are soluble in such liquid solvents as ether, benzin, gasolene, carbon-tetro-chloride and other solvents of a similar class which do not mix with water and aqueous solutions.

The process also depends upon the further fact that resin acids when saponified by means of aqueous solutions containing soda, or other metallic compounds, are insoluble in solvents, such as ether, benzine, etc., and this makes it possible to separate the impurities from the resin soap by washing with the solvents, such as ether, etc. In practice the process is carried out by dissolving the resin, preferably in the sticky form as it is taken from the tree, in benzine or gasoline, filtering off the insoluble impurities, saponifying the resin in the solution by the addition of an aqueous solution containing caustic soda or soda ash, after which washing the mixture is allowed to settle. The liquid separates into two parts, the upper one containing the gasolene or benzine and impurities of the resin and the lower one containing the water solution of washed or clean saponified resin. The water solution of saponified resin is then drawn off and to this there is added one of the mineral acids, for instance sulphuric acid, by which the resin is precipitated, after which the liquid can be withdrawn in any suitable manner leaving the pure resin.

The following abstracts give a survey of the U. S. patents relative to wax sizing compositions.

1. Gwynn 46,466. Feb. 21, 1865.
   Paper is impregnated with a composition of paraffin and rubber.
2. Goessling. 80,260. Aug. 4, 1868.
   Paper coated with a composition containing four and a quarter pounds common rosin, three pounds suet, a quarter pound yellow wax, and one-eighth pound flour of sulphur.
3. Rauh 96,148. Oct. 26, 1869.
   Paper waterproofed with a composition of wax, Venetian turpentine, gum-dammar and spirits of turpentine.
4. Van Herwerden 141,525. Aug. 5, 1873.
   Paper coated with a composition of soap, wax and isinglass.
5. Lamb 224,295. Feb. 10, 1880.
   The process for preparing a waterproofing compound consisting in first dissolving refined paraffin in naptha, benzine, benzole, gasoline and then treating the solution with gas from a mixture of chloride of sodium and sulphuric acid.
6. Lamb 224,297. Feb. 10, 1880.
   A waterproof compound formed by the union of purified paraffin and a hydrocarbon gum, dissolved in any suitable light hydrocarbon, treated with hydrochloric acid gas, and freed from residual-acid gas and other vapors.
7. Rohe 229,471. June 29, 1880.
   A waterproof compound consisting of gum-shellac, gum-sandarach, suet, wax, a pigment, and a suitable alkaline solvent.
8. Gillespie 253,369. Feb. 7, 1882.
   A waterproofing compound composed of ozocerite or mineral wax and a siccative vegetable oil.
9. Kemmer 256,705. April 18, 1882.
   Paper is coated with a composition consisting of turpentine, rubber, linseed oil and beeswax.
10. Weimann 275,738. April 10, 1883.
    A waterproofing compound consisting of resin, paraffin, gum-xopal, benzole, and benzine.
11. Maxfield 278,443. May 29, 1883.
    A paper coated with ozocerite to render it waterproof and durable.
12. Collins 332,054. Dec. 8, 1885.
    A wall paper treated on one side with a composition consisting of paraffin wax, benzine, resin, or its equivalent, starch, and pigments, applied to one surface of the paper in a stippled or uneven manner.
13. Bird 332,868. Dec. 22, 1885.
    A composition for waterproofing paper consisting of resin, paraffin, and silicate of soda.
14. Macrone 344,119. June 22, 1886.
    A size consisting of odorless seed-oil that has been heated till ebullition ceases, resin, paraffin wax, beeswax, and copal varnish.
15. Robinson and Cothren 347,200. Aug. 10, 1886.
    A paper treated with a mixture of resin and paraffin.
16. Fay 369,700. Sept. 13, 1887.
    A composition consisting of a mixture of one hundred parts of rosin and forty each of tallow and paraffin.
17. Menuez 418,208. Dec. 31, 1889.
    A composition consisting of shoemaker's wax, gutta-percha, india rubber, a solvent, and japan.
18. Holmes 577,135. Feb. 16, 1897.
    The process consists in mixing with fibrous pulp, oil, rubber and wax, then adding material to produce an emulsion, adding alum, and forming the pulp into any desired shape.
19. Menzies 690,868. Jan. 7, 1902.
    The process consists in immersing paper first in a solution prepared by boiling caustic potash with fatty acid and adding sodium silicate and paraffin wax thereto, and thereafter in a fixative solution of acetate of alumina.
20. Brown 793,048. June 27, 1905.
    A composition for rendering paper cartons or receptacles liquid-proof consisting of paraffin wax and paraffin oil, Brazilian

wax, talc, powdered asbestos, abestine, powdered chalk, beeswax, bayberry-wax, petroleum oil, creasin wax and white wax.

21. Govers 800,144. Sept. 26, 1905.

The process of producing a paper coating consists in dissolving casein in ammonium hydrate, adding wax and calcium sulfate thereto, applying the same to the fabric to be coated therewith and evaporating the solvent at or above 110° Fahrenheit.

22. Govers 800,145. Sept. 26, 1905.

A coating for paper containing sulphuric acid casein, sodium phosphate, sodium hyposulfite, china clay, satin white, wax and water.

23. Govers 800,146. Sept. 26, 1905.

A waterproof coating for paper containing casein dissolved in a solution containing sodium phosphate and sodium hyposulfite and having china clay, satin white, and formaldehyde added thereto.

24. Kochmann and Kaufmann 813,218. Feb. 20, 1906.

The process consists in treating the materials or articles with a solution of alum, and melted carnauba wax.

25. Wessel 823,246. June 12, 1906.

A composition consisting of a mixture of pure white paraffin and a colorless distillate of petroleum of the specific gravity of 0.875 or 0.945 and stearic acid.

26. Smillie 1,087,696. Feb. 17, 1914.

A waterproofing compound consisting of blackfish oil and paraffin wax, in the proportion of three parts of such oil to four parts of the paraffin wax, dissolved in an evanescent liquid hydrocarbon.

27. De Cew 1,174,697. Mar. 7, 1916.

A process of making non-separating waterproof sizing composition which consists in permanently emulsifying wax and rosin when the wax is in excess of 15 per cent of the weight of the rosin, for the treatment of paper stock in the beating engine.

28. Gelertsen 1,204,149. Nov. 7, 1916.

A waterproofing composition comprising 75 per cent or over of resin, substantially the remainder of the composition being a hydrocarbon wax, the composition also comprising a small percentage of carnauba wax.

29. Adams 1,231,687. July 3, 1917.

A waterproofing composition comprising an adhesive mixture containing viscous hydrocarbon, wax, and oil dissolved in or softened by a volatile solvent combined with a filler of finely divided portland cement.

30. Kniffler 1,266,955. May 21, 1918.

A wax mixture emulsion containing paraffin wax, an ammonia soap, and water in quantity sufficient to produce a vixcous mass with the quantity of ammonia soap used.

31. Kiernan 1,327,239. Jan. 6, 1920.

A waterproof composition consisting of an emulsion of 810 parts of paraffin, 125 parts of petrolatum, the reaction products of 112 parts of a fatty acid and 27 parts of soda ash and water.

32. Bailey and Boettner 1,364,475. Jan. 4, 1921.

A waterproofing composition comprising pitch resin, a high boiling tar acid, and about 1 to 5 per cent of wax.

33. Richter, Van Arsdel and White 1,396,527. Nov. 8, 1921.

A water-repellent composition consisting of about 25-60 parts of gilsonite, about 25-70 parts of paraffin, and about 5-10 parts of petroleum oil, all blended with heat, and having a melting point of 120 to 150 deg. F.

34. Crespo 1,401,524. Dec. 27, 1921.

An impregnating composition for paper consisting of rosin 15000 parts, stearin 1500 parts, paraffin 1500 parts, and sulfur 100 parts.

35. Pullen 1,452,389. April 17, 1923.

A liquid sizing for paper consisting of lime water, borax, wax and oil.

36. Kramer 1,460,251. June 26, 1923.

The process of emulsifying a normally solid water-proofing substance by mixing it in a molten state with an aqueous solution of soap, reacting on the soap solution with a metallic salt to produce a substantially water insoluble soap, allowing it to cool, and adding a thinner.

37. Magill 1,676,617. July 10, 1928.

A fibrous board stiffened with a mixture of paraffin and Montan wax combined in the approximate proportion of 10 to 25 per cent Montan wax.

38. Van Arsdel 1,714,702. May 28, 1929.

A waterproofing coating composition which is hard, non-sticky and waxlike at ordinary temperatures, remains tenacious at about 100 to 140 deg. F., and tough at about 40 to 50 deg. F., and is composed of a mixture of about 40 to 70 per cent petroleum asphalt, 15 to 40 per cent paraffin, and 10 to 30 per cent of a finely divided filler.

Deterioration of Paper

Chemical accelerative factors in the deterioration of paper are apparently acidity of paper and air in contact therewith, oxygen, and catalytic effect of the paper itself says the Bureau of Standards. There is some evidence that paper-deterioration is autocatalytic in nature. Because of these last two factors, it is important to know the relation between the measured area of a piece of paper and the actual (contour) surface of paper which this measured area represents. A method for determining this ratio has been devised and preliminary tests yield promising results. For every cubic foot of air in contact with paper there are apparently 70,000 times as much oxygen-surface as true paper-surface, which increases the probability of catalytic-effect of paper-surfaces in contact with deteriorative gases. Specimens for cross-section photomicrographs, as well as a special device for measuring contour-surfaces are in course of preparation.

Tests were made on three rosin-sized papers having various degrees of acidity. The papers were made in the bureau experimental paper mill from purified wood fibers. Runs 766, 771 and 772 were identical except for the hydrogen ion concentration of the stocks, which were 4.4, 5.5, and 6.5 respectively at the head-box. The regular physical and stability tests were made, also the usual chemical tests.

It was found that sample 766, having the highest acidity, is also the least stable of the three papers. Lowering the acidity was found to have increased the stability markedly. Evidently, it is extremely important to control carefully the pH of stock for permanent papers. Only the smallest amount of alum necessary for the required sizing quality should be used. It is probable that commercial mills could improve the permanence qualities of their papers by regulating the acidity more carefully, and without losing sizing quality. Sample 771, which had an acidity of 4, and a pH of 5.5 much lower than usually encountered in commercial papers, was remarkably resistant to the heat test, and yet was satisfactorily sized. Sample 772, even more stable, did not appear to be sufficiently well sized. Therefore, 5.5 is probably about the right hydrogen ion concentration in this type of stock to obtain the best combination of sizing quality and stability.

TAPPI Notes

L. B. Tucker, formerly a member of the technical staff of the Government Printing Office, has joined the technical staff of Crane & Co., Dalton, Mass.

Harry E. Patterson of the Container Corporation of America mill in Chicago, has been transferred to the "Weatherboard" plant of the Chicago Mill and Lumber Company at Greenville, Miss.

D. E. Murray has joined the Flintkote Company organization at Rutherford, N. J. He was formerly with the Certain-Teed Products Company, York, Pa.

George Shipman, formerly with Cellulosa Cubana, Tuinucu, Cuba, is now with Price Bros. & Company, Ltd., Donnacona, Quebec, and was a visitor this week at the TAPPI office.

The Measurement of the Contrast Ratio of Opaque and Translucent Papers

By James d'A. Clark[1]

The printing quality of a paper is determined to a very great extent by the texture and uniformity of the surface which it presents to the face of the type. Of equal importance, however, when printing has to be done on both sides, is the opacity.

The manufacturing operations required to give the highest quality of printing surface by bringing the constituents of the sheet closer together obviously tend to reduce the opacity, but skillful manipulation of the materials can be made to yield the desired opacity consistent with the requisite surface. It is evident that besides measurements of the surface and porosity alone, an accurate determination of the opacity becomes an essential feature of testing the printing value of a paper.

In 1901 Klemm[2] introduced what was probably the earliest commercial instrument for measuring the opacity. An increasing number of thicknesses of paper are inserted in a holder between a standard pentane lamp and the eyepiece until all trace of the illumination is obliterated. The number of thicknesses required is taken as a measure of opacity.

Maximowitsch[3] described a way of measuring the translucency of paper by means of a modified photometrical apparatus originally used for determining the opacity of photographic plates. A somewhat similar method will be referred to later.

The contrast method which has become quite popular in the United States and elsewhere was originally devised by Sammet[4] in 1912. The U. S. Bureau of Standards in Washington, D. C., has paid attention to the development of the same principle and a very satisfactory method for determining the opacity of cloth or paper has been devised[5].

The Opacity Meter

The instrument devised for this purpose consists of a wooden box lined with opal glass and uniformly illuminated from within by diffused artificial light. At one end of the box are two areas, one a perfectly black "surface" consisting of a small cavity lined with black velvet which effectively absorbs all the light that enters, and the other a perfectly white surface, consisting of a disc thickly coated with magnesium oxide prepared by exposing the surface to the smoke of a burning magnesium ribbon, or a disc of pure magnesium carbonate. A sample of the material to be tested is inserted in a holder directly in front of, and as close as possible to the two standard areas, which are then viewed through a form of Wanner or Martens photometer mounted on the other end of the chamber. The field seen by the observer is divided into two semi-circles illuminated respectively by (a) light reflected from the paper only (the transmitted light being absorbed by the black cavity), and (b) light reflected from the paper plus that reflected through the paper from the white surface beneath. The eyepiece, to which is attached a scale pointer and analysing nicol prism, is rotated until the two semi-circles appear equally illuminated when a reading is taken on the scale. A check reading is also taken with the photometer turned through 180 degrees.

With no sample in the photometer the scale is set so that the light from the white area is extinguished when the pointer is at zero. When a perfectly opaque paper is placed over the two areas so that the light from the portion over the black "surface" is equal to that over the white surface, then both fields appear to be equal when the pointer is at 45 degrees.

If θ_1 and θ_2 are the two readings of the photometer, being the respective angles through which the pointer is rotated from the zero position to the positions where the fields appear equally illuminated, first θ_1 with the photometer in one position, and secondly θ_2 with the whole photometer rotated through 180 degrees, then the ratio of the brightness of the sample over the black area to its brightness over the white area is given by (tan. $\theta_1 \times$ cot. θ_2). For example, in the two instances cited in the previous paragraph the first corresponds to a perfectly transparent paper, (tan. 0 deg. $\times$ cot. 90 deg.) being zero and in the second to a perfectly opaque paper, (tan. 45 deg. $\times$ cot. 45 deg.) being unity. The second angle (θ_2) of which the cotangent is taken is that read when the photometer has been turned through 180 deg. and lies between 45 and 90 deg. If the instrument is accurately made and the internal illumination is uniformly distributed ($\theta_1 + \theta_2$) should equal 90 deg. and the ratio is then equivalent to $\tan^2\theta_1$.

The apparatus just described is very suitable for papers of which the contrast ratio is not much above 0.85 which would be about the ratio for a medium weight bond. For more opaque papers the range 0.85 to 1.0 is covered by only 2.3 degrees of arc and as most newsprint papers lie between 0.90 and 0.95, only 0.9 degrees of arc, it is clear that the method is unsuitable for accurately measuring their opacity.

To consider the question further, suppose that the paper being tested is put in the holder of the Bureau of Standards instrument so as to cover only the black surface and the reading taken. (Tan. $\theta_1 \times$ cot. θ_2) would then be the ratio of the light reflected from the paper to that reflected from the standard white surface above. For this determination the thin glass cover which normally shields the white surface should be removed. We might call this the reflecting ratio of the paper. Next suppose the black and white surfaces are removed and substituted by a ground glass screen uniformly illuminated from behind and the light inside the instrument chamber extinguished. If the sample of paper is placed so as to cover only one-half of the screen and a reading taken, this would give the ratio of the light transmitted through the paper to that which would be transmitted were the paper perfectly transparent, which we will call the transparency ratio. The sum of the reflecting and transparency ratios is not quite unity as a certain small quantity of light is neither reflected nor transmitted, being absorbed by the paper in the form of heat.

Measurement of Contrast Ratios

From consideration of the above, the contrast ratio is measured by

$$\frac{\text{reflecting ratio}}{\text{reflecting ratio} + Z \times \text{transparency ratio}}$$

where Z is a factor nearly equal to unity for white opaque paper in which case also the reflecting ratio will not be far from unity so for practical purposes the above ratio simplifies to

$$\frac{1}{1 + \text{transparency ratio}}$$

[1] Member TAPPI; Asst. Mgr., Bowaters Paper Mills, Gravesend, Kent, England.
[2] Paul Klemm, Method of Testing the Opacity of Paper. Woch. Papier. 34, No. 29 (1903).
[3] Maximowitsch, Translucency of Paper. Pap. Ziet. 34, No. 59 (1909).
[4] Chas. F. Sammet, U. S. Dept. of Agriculture, Bureau of Chemistry Circular 96 (1912).
[5] Bureau of Standards Circular No. 63, 1917, "Specification of the Transparency of Paper and Tracing Cloth."

which since the transparency ratio is small, as a further approximation is equal to

(1 — transparency ratio).

In this way, the determination of the transparency ratio gives a very fair means of measuring the contrast ratio, but only if the paper is white and opaque, having a contrast ratio of say about 0.95, or expressed as a percentage 95 per cent, as for less opaque papers the reflecting ratio and the factor Z differ appreciably from unity. For example, a yellowish white bond paper was found to have a contrast ratio of 0.890, a reflecting ratio of 0.783 and a transparency ratio of 0.147, consequently the value of the factor Z was about 0.66 and the difference between the true and calculated contrast ratios using the last formula is as much as 3.7 per cent.

The transparency ratio is also the factor determined in Maximowitsch's apparatus and may be used directly as a measurement of the opacity of the paper but as the contrast ratio is considered to be the best measurement as regards printing quality, the following method of determining it was devised for opaque papers which has the merit of being simple and convenient and has proved in practice to be excellent for routine work.

A piece of paper is selected as a sub-standard which is made of materials which keep as permanent as possible. The color and texture should approximate to the average of samples to be tested and it should have a contrast ratio of about 85 per cent or slightly greater. A fairly opaque dull colored bond paper of a slightly yellowish cast is very suitable. Its contrast ratio is very accurately determined using the ordinary method, and taking a large number of readings. A special attachment to replace the black and white areas by a uniformly illuminated glass screen is inserted and the sub-standard together with the sample to be measured is placed in the holder of the instrument so that each paper covers one of the halves of the photometer field. If the fields are matched by rotating the arm of the photometer and the sample has the same opacity as the sub-standard, the setting of the instrument would be 45 deg. and if the sample were perfectly opaque the reading would be zero. If the sub-standard has a contrast ratio of 86 per cent, the range of 86 per cent to 100 per cent, contrast ratio is thus covered by 45 degrees of the photometer scale instead of about 2.2 degrees by the usual method.

Supose the reading is 35 deg. for the combination of sub-standard and sample and on reversing the photometer the reading is 55 deg.; (tan. $\theta_1 \times$ cot. θ_2) equals 0.7×0.7, equals 0.49. As the calculated transparency ratio of the sub-standard is (100 — 86), equal 14 per cent and the transparency ratio of the sample is accurately 49 per cent of this, i. e., 6.9 per cent, the contrast ratio of the sample is (100 — 6.9) or 93.1 per cent. This result is quite accurate as working in this way from the contrast ratio of the sub-standard, the errors due to assumptions made in applying the above formula tend to cancel out as both papers have reflecting ratios and values for Z which are nearly equal and the remaining error is only a small fraction of the difference of two small quantities. If on the other hand the true transparency ratio of the sub-standard is measured and the true transparency ratio of the sample is determined as a fraction of this and its contrast ratio calculated, the value so obtained will be less accurate and will differ slightly from that found by the method recommended.

Applications

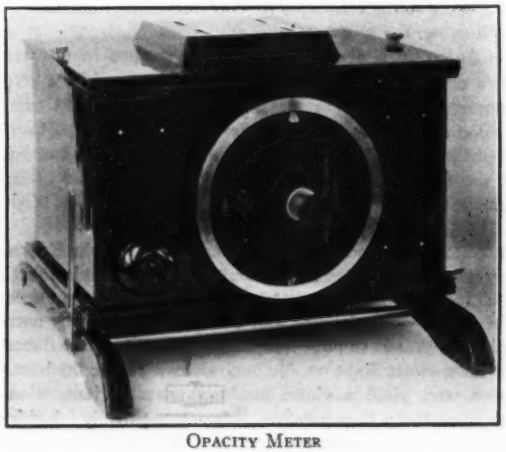
For routine purposes, a graph is drawn for the selected sub-standard for readings only between 0 and 45 deg. as with an accurately made instrument the photometer need not be reversed. The determination then evolves itself into several readings being taken over different parts of the sample, the average determined and the contrast ratio read off the graph.

In order to eliminate the difficulty of matching slightly different colored fields for intensity of illumination, for routine purposes, the eyepiece of the photometer is replaced by one containing a special green filter, when at a sacrifice of very little accuracy, the matching of the fields is rendered extremely easy.

A British made apparatus has recently been placed on the market by the Cambridge Instrument Company. It is based on the design by the U. S. Bureau of Standards, gives equivalent readings, and is also adapted for the method just described. The instrument body is strongly constructed of cast aluminum instead of wood and the circular scale is of much larger diameter than the Bureau of Standards instrument. On the suggestion of the writer the unit carrying the standard surfaces is also made to rotate through 180 deg. so that the black and white areas can be easily interchanged beneath the sample examined. This is a particularly useful arrangement when dealing with papers not having a uniform close formation, and with the photometer also rotatable, four separate and distinct readings can be obtained for each position of the sample. The face of this unit is made telescopic so that the two areas can be adjusted to be as close as possible to the sample undergoing test.

The areas actually viewed in the photometer are about 10 m.m. diameter and 22 m.m. apart. In the Bureau of Standards instrument these areas are about 1 3/16 inches diameter and 2½ inches apart.

The special attachment for determining the transparency ratio



Opacity Meter

or the contrast ratio of opaque papers carries a ground glass screen and opal electric bulb with switch and means are provided for ensuring an even illumination of the glass screen. This attachment may be exchanged for the unit carrying the black and white areas in a few moments.

If desired for experimental work, eye-pieces with different colored filters may be supplied which are interchangeable with the green and the colorless filter.

Illustrations

In conclusion it might be of interest to give the readings for an actual determination of the contrast ratio of a piece of parchment paper to illustrate the technique employed.

1. Photometer in normal position: (a) 33.7, (b) 34.4, (c) 34.4, (d) 33.8. Average 34.08° (θ_1)
2. Photometer turned through 180 degrees: (a) 55.6, (b) 56.3, (c) 56.1, (d) 55.4. Average 55.85° (θ_2).
3. Black and white surfaces reversed: (a) 33.8, (b) 34.7, (c) 34.6, (d) 33.9. Average 34.25° θ_1).
4. Photometer turned back to normal: (a) 55.2, (b) 56.1, (c) 56.2, (d) 55.6. Average 55.78° (θ_2).

Average (θ_1) 34.16 deg. Average (θ_2) 55.82 deg.

(tan. $\theta_1 \times$ cot. θ_2) = (tan. 34.16 × cot. 55.82) = (.678 × .680)

contrast ratio = 46.0 per cent

A measurement by the Bureau of Standards in Washington of the opacity of a piece of the same paper agreed with this result to within 1 per cent.

For those readings marked (a) the fields are matched while very slowly turning the pointer in a clockwise direction (b) by continuing to turn the pointer clockwise very slowly till a difference is just discernible (c) fields are matched while very slowly turning the pointer in an anti-clockwise direction and (d) a difference is again just discernible.

While no doubt with greater care the readings for (a) and (d) and for (b) and (c) would show a better agreement it is easier for the eye to allow itself to be misled into seeing apparent differences and similarities of the fields and then cancelling out the errors so involved by turning the pointer first one way and then the other.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

Wood and Pulp. Arthur S. Klein. Wochbl. Papierfabr. 59, Special No. 60-67. (1928).—A general review, covering the subjects of wood supply and forest management the nature of wood substance, cellulose and lignin, and pulping processes, with numerous references to the more recent literature.—C. J. W.

Fluorescence of Pine Bark, Pine Wood, Sulphite Pulp and Liquor. O. Gerngross. Z. Angrew. Chem. 41, 50-51 (1928).—This is a reply to the criticisms of Hägglund and Johnson. Pine wood on heating for a short time with dilute hydrochloric acid yields a solution with a weak reddish fluorescence in ultraviolet light, while cotton wool dipped in this solution acquires a strong violet fluorescence similar to that shown by the aqueous extract of pine wood obtained by boiling under pressure. These observations are not in accordance with the views of Hägglund and Johnson that the fluorescence of sulphite pulp is due to the presence of lignosulphonic acid. A reply by Hägglund and Johnson is given on page 51.—C. J. W.

Fluorescence of Wood Pulps and Vegetable Tannin Extracts. O. Gerngross, N. Ban, G. Sándor, and K. Tsou. Papierfabr. 25, 49-52 (1927).—An experimental lecture demonstrating the effect of ultraviolet light on wood pulps and tannin extracts, both natural and synthetic. Waste sulphite preparations for tanning fluoresce violet in ultra-violet light. Cellulose, viscose rayon, hydrocellulose, starch, etc., yield a violet fluorescence after immersion in spruce bark extract; nitrocellulose behaves negatively. Evidence is given that the fluorescent property is probably not due to sulphonic acids. Filter paper dipped into spruce bark extract fluoresces similarly to unbleached sulphite pulp. The fluorescent compound is slightly soluble in hot water, resists organic solvents, is sensitive to alkalies and chlorine but is not attacked by acids.—C. J. W.

Size of Paper Fibers. Paul Klemm. Wochbl. Papierfabr. 59, Special No. 88-95 (1928).—The effects of length, diameter and length-diameter ratio on the character of the paper sheet are discussed theoretically. A closer study of this matter is a necessary step toward a better understanding of the relation between pulp quality, paper structure and paper quality. The present paper aims to prepare the way for such a study.—C. J. W.

Control of Losses in Mfg. Processes. Walter Brecht Papierfabr. 26, 469-473 (1928).—Raw materials, finished products and wastes of all processes should be systematically checked. The use of controlling instruments, some of which are described, is recommended. Losses not only of material, but of time, steam, power, etc., should be considered.—C. J. W.

Paper and the Influence of Press Room Conditions Upon It. Otto W. Fuhrmann. International Assn. of Printing House Craftsmen, New York. Paper Tr. J. 87, No. 24, 54-56 (Dec. 13, 1928).—A grief analysis of printers' paper troubles, particularly those due to atmospheric conditions, showing that they may be largely overcome by proper humidity control in the press room.—A P. C.

Durability of Printed Papers and Manuscripts. Norman Parley. Paper Makers Monthly J. 66, 445-451 (Oct. 15, 1928). World's Paper Tr. Rev. 90, 1292-1296 (Oct. 19, 1928)—A brief review of the history of the movement towards establishing standards of durability of paper, together with suggestions for standards of classification and texts of the resolutions of the committee of experts for the preservation of printed papers and manuscripts of the International Institute of Intellectual Cooperation (Jan. 30-31, 1928).—A. P. C.

Correct Cost Calculations. G. M. Johansson. Svensk Pappers-Tidn. 31, 209-216 (1928).—A cost accounting system for paper manufacture is described and illustrated based on accurate unit cost for pulp, conversion to paper, calendering, trimming and cutting, rewinding, sorting and counting and packing.—C. E. P.

Deinking Solution. Wm. Lewis. Can. pat. 283,130, Sept. 4, 1928. A deinking solution for paper stock contains sodium or potassium silicate, caustic soda, pearline and water.—A. P. C.

Odor in Printed Matter. Robert Wall. World's Paper Tr. Rev. 90, 982-986 (Sept. 21, 1928).—A brief discussion of the causes and remedies of odors in printed matter.—A. P. C.

World Production of Newsprint Paper with Especial Reference to the U. S. and Canada. W. Schmid. Papierfabr. 26, 475-481 (1928). World figures on production and consumption for 1926 are analyzed. The increase in production in North America for the period 1913-1926 is discussed.—C. J. W.

Clyde Paper Co. Anon. World's Paper Tr. Rev. 90, 1204-1210 (Oct. 12, 1928).—An outline of the developments and extensions at present under way at the mills of the Clyde Paper Co.—A. P. C.

Port Huron Mill Adds New Machine. Anon. Paper Industry 10, 1404-1406 (Nov. 1928).—A description of the 132 inch Beloit fourdrinier machine recently installed by the Port Huron sulphite Pulp & Paper Co.—A. P. C.

Report on Waste Utilization. C. M. Baker. American Paper & Pulp Assn. Paper Mill 51, No. 51, 22, 26 (Dec. 22, 1928).—A summary of the first year's activities of the Natl. Committee on Waste Utilization and Stream Improvement.—A. P. C.

Dusting and Conveyance of Esparto Grass in the Mill. E Norman Beavis. World's Paper Tr. Rev. 90, 1120-1134 (Oct. 5, 1928).—A description of the Sturtevant system installed at the Guardbridge mills.—A. P. C.

Improved V-Notch Weir Recorder. Anon. Paper Tr. J. 87, No. 22, 37-38 (Nov. 29, 1928).—A brief description of the new Cochrane V-notch weir recorder. The required transformation of motion in order that the flow may be recorded on a chart having uniform graduations is obtained by hanging the cam from pivot bearings so that it can oscillate in a vertical plane, while a roller carried by the float stem and moving up and down in a straight line bears against the edge of the cam, approaching the axis or center of oscillation of the latter at the higher flows.—A. P. C.

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Success of Mergers and Accountants*

By A. J. Peel

The responsibility that rests on the accountant in conjunction with effecting mergers of going businesses is briefly yet vividly set forth in this article. The accountant determines the basis on which the merger may equitably be effected, and also forecasts the economies likely to be effected, and the profits that may be expected. It is a timely contribution.—EDITOR.

Forty years ago a merger—or a "trust" as it was then called—was ostensibly for the purpose of creating a monopoly—cornering the market—and this was effected largely by professional financiers. The next revival of this tendency was for the purpose of controlling the units of production. The latest development of the merger idea, the current movement, has as its objective the securement of better and bigger marketing facilities. Each development has been a progressive step towards saner business practice and policy.

There are various forms of combinations of business interests, and while the terms "merger," "consolidation," and "holding company" are sometimes used interchangeably, there is a clear distinction between the forms by which combinations are effected. A consolidation is effected by the organization of a new company which buys out the business of the old companies, takes over their assets, and assumes their liabilities. The stock of the new company may be exchanged directly for the net assets of the bought-out companies, or it may be sold for cash, in which case it is used to pay off the stockholders in the old concerns. The bought-out companies then go out of business, after the cash or stock received has been distributed to their stockholders.

No New Company Organized

No new company is organized in the case of a merger. One of the old companies buys out the others, for an amount equal to the net worth of the other companies. The payment may be either in cash, in stocks, or in both. The bought-out companies then go out of existence.

A holding company secures its holdings in other companies by buying up the stock from their stockholders, so as to be in a position to control the business of the subsidiary companies. It may be necessary to organize a new company for this purpose. When the holding company secures the stock of subsidiaries by paying for it in cash, the stockholders in the old companies secure no interest in the holding company. But if the holding company pays for the stock by issuing its own stock, they become stockholders of the parent company.

The United States Steel Corporation is purely a holding company; that is to say, it undertakes no operations on its own account but controls the stock of several other corporations. The New York Central Railroad, and the Interboro Rapid Transit Company of New York City, operate property of their own, besides controlling other companies through majority stock ownership.

If the distinctions between "consolidations," "mergers," and "holding companies" are clear, the subject may be considered from the point of view of combines, regardless of their nature, since the arguments pro and con for any type of combine are substantially the same.

Specific Case Cited

A specific case will show how a merger is effected, and why. The owners of two companies engaged in the manufacture of builders' supplies discuss the advisability of merging for the purpose of expanding their market and reducing their operating expense. Neither company has been in a healthy or flourishing condition, and a merger seems the only means of continued existence. Having agreed to consolidate their interests, they call in accountants to make an investigation of the books of the respective concerns. On the basis of the accountants' findings the assets of one concern are purchased by the other, and if the purchase is made in stock in the new company, the stock is apportioned on the basis of the respective holdings of the individuals interested.

But right here the first difficulty is encountered: 0 plus 0 does not equal 1. Both concerns were showing losses when operating as individual plants, and the mere fact that a merger is consummated will not in itself change conditions which were responsible for failure to show profits. It is quite evident that a new factor must be introduced which had not existed when the plants were operating as individual units under separate control and management. To insure success in financing three things are essential: (1) A sound undertaking, (2) sufficient capital, and (3) efficient management. These are fundamental.

Additional Capital Principal Need

In the case under consideration it was a sound undertaking; that is to say, there was a good market for the manufactured products, and competition was not destructive. The plants were efficiently managed in so far as the human element was concerned; but the machinery was inadequate and out-of-date, equipment was run-down and expensive to operate. By a process of elimination, therefore, the real cause for failure to show prosperous business is disclosed—lack of sufficient working capital for expansion and new

* The American Accountant.

machinery. The problem before the owners of the new company, therefore, was to obtain additional capital. Realizing that they could not reasonably apply for funds to the banks or to private investors who might be interested in local enterprise on the basis of past earnings or present worth, the new combine made advances to the owners of another local plant to come into the merger. This business had been fairly successful, but with the prospect of a virtual elimination of competition over a widely extended area the owners took the matter under advisement and eventually expressed their willingness to come into the merger.

But 0 plus 0 plus 1 does not make 3. Nevertheless on the strength of a consolidated balance sheet the new company, which now included a third unit, asked the assistance of the banks to raise an additional $50,000 of capital. Had it not been for the fact that the banks were already carrying paper for the three separate concerns it would have been more than doubtful whether the banks would have made the loan; but as frequently happens especially in small towns the banks were already involved and so were willing to aid. But to protect themselves as much as possible the bankers demanded that further notes be endorsed personally by the president of the new company, since he was the only individual in the new company whose private means were sufficient to cover the extra risk.

Probable Results Must Be Analyzed

The above were the facts as developed in the case of one merger. They are sufficient to illustrate some of the dangers of effecting a consolidation before the results have been carefully analyzed and studied from every angle.

One of these dangers is the expectancy that a merger always results in a reduction of overhead and operating expense. On the face of it this would seem quite logical, but the fact is that this does not always follow; at least not until the new concern has been operating for a year or more. It is a well-known fact that mergers of coal fields in West Virginia and Pennsylvania have never resulted in a reduction of operating expense.

As in the case of the concerns mentioned above, a run-down business is usually in need of new and modern machinery, up-to-date systems of management and control, more efficient personnel, and a more productive selling organization. In part these deficiencies may be due to lack of sufficient working capital, which none of the concerns, operating individually, was able to secure. These conditions will explain high operating costs. Before expenses can be reduced they must be increased.

In the specific case used for illustrative purposes it was found that the first need was to bring in expert accounting assistance. One of the professional accountant's problems is that he is often called in to do constructive work by concerns that have difficulty in finding the ready cash with which to pay his bill; yet without such service they would seldom move forward so as to be in a position to effect significant savings and improvements.

Installation of a modern cost accounting system means an increase in the office force—though this may be only temporary. More efficient management means a higher-salaried superintendent in the factory, and more competent supervision in the office. Economical production demands a complete reorganization in the plants, and the installation of more modern machinery. All this involves an expenditure before the sales volume can be increased.

But there is another phase of the problem which must not be overlooked. The new company must not only maintain the stock turnover and net profits enjoyed by the successful plant which came into the merger; it must develop a sales organization which will be effective in securing an adequate return on the total invested capital of the three combined companies.

The item of selling expense introduces the question of advertising appropriation. Building supply dealers, for example, spend only three-tenths of one per cent of income in advertising, and it is, admittedly, too small. The amalgamation referred to above forced the subject of an increased advertising appropriation to the forefront owing to the demand for bigger markets and territorial expansion. Thus all along the line, a merger of two or more concerns usually entails an increase in operating costs at the outset.

Greatest Danger is Over-Capitalization

This discloses the chief danger connected with mergers that are brought about because of a need for increased working capital, namely, the disposition on the part of individuals whose ownership holdings are affected to attempt to undertake financing beyond the capacity of the business to absorb during the period of expansion. There is only one safe way to arrange for new capital, and that is to the extent that the business can absorb it.

One of the reasons why consolidations that have had for their purpose more economical production or distribution, or both, often do not meet with that degree of success which was anticipated is that often the economies effected were such as could have been introduced successfully only when the plants were operating as separate units. Had the improved methods been adopted when the plants were operating separately, profits would have resulted and the need for consolidation for the purpose of reducing operating costs would not have existed. In some cases consolidation has only retarded prosperity because of increased capitalization and overhead.

If the purpose of a merger is to secure better markets, more intensive selling, and the elimination of unhealthy price-cutting and unfair competition, the consolidation is based on a logical foundation, and, all things being equal, it should succeed. There are, of course, other factors to be taken into consideration such as the ability to purchase advantageously on a quantity basis.

Some Savings Effected

In matters of administration and management a merger ought certainly to result in an eventual saving of expense. Centralization of accounting control, stock records, and sales control, all tend towards this. In the case referred to an immediate saving was effected by centralization of stock records, one clerk doing the work which three clerks performed when the plants were operating as individual units. But this depends on the installation of proper methods of accounting and cost-finding.

The success or failure of any combine depends on a hypothetical future—a future of increased sales, and the correct forecasting of that future is a function for which accountants are specially fitted. Business men who go into a merger without due regard to meeting this essential requirement are courting trouble and disillusionment.

Forestry Officials Meet at Warrensburg

[FROM OUR REGULAR CORRESPONDENT]

WARRENSBURG, N. Y., November 11, 1929.—About 100 forestry officials and pathologists representing eleven states, Washington, D. C., and Canada, held a three-day convention here this week to discuss problems on white pine control for the Eastern and Great Lakes States. This was the first convention ever held here. The conference opened in the Adirondack Hotel with addresses by William G. Howard, superintendent of forests in New York State, and A. C. Cline, assistant director of the Harvard forests at Petersham, Mass. Other speakers included N. C. Brown, acting dean of the New York State College of Forestry in Syracuse.

Following the opening session the party inspected fields of white pine acres as well as pine lots near Warrensburg under the experimental control of the state and the United States Department of Agriculture. In the afternoon the delegates met in the new administration building on the Charles Lathrop Pack demonstration forest where the principal address was delivered by H. A. Allanson, assistant chief of the Bureau of Plant Industry connected with the agricultural department. A banquet with all delegates attending was later served in the Adirondack Hotel.

Factual Management vs. Keener Competition*

By Edward N. Hurley[1]

Whether many a business makes the profit it should this year depends on whether its executives recognize the developments in the science of management that can be used to overcome the keener competition of today. Mr. Hurley tells of these developments from a noteworthy background both in actual business experience and in important government administrative responsibilities.

The whole tenor of business is changing. Better men are needed to manage a business at a profit today than ten years ago, or even five years ago. Keener competition, due to major economic changes, is the underlying reason.

To avoid, right from the start, any possibility of misunderstanding, let us differentiate management from administration. Administration may be sketchily defined as setting the major policies. Management comprises organizing to carry out these policies effectively, and then actually carrying them out to earn a profit. Business requires far more management than administration. Actually, of course, comparatively few business units have even one man who is legitimately occupied with purely administrative functions, to the exclusion of management. On the other hand, most managers above the lower ranks of supervisors have some flavor of administrative work. But the two types of activity must be kept distinct in thought, because they are totally different.

Changing Importance of the Functions

There is a crying need at this moment to point out the changing imporance of these functions. It must, like any major shift, influence the success of companies and the careers of individuals. And the principal purpose of this article is to bring into the light a set of facts that should, I hope, increase the profits of companies which take cognizance of them.

When the greatest profits were derived by exploitation of this country's resources, when consumers were hungry for goods so that the cry was always for more production, the administrator had his peak of value. The man who could devise policies under which his company could produce more goods or distribute more of other people's products—his was the glory of his company's success and the responsibility for its profits. Once he had laid out the policies, almost anyone could carry them out. Conditions were such that skillful management was not needed, in fact was not worth paying for and therefore it was not secured.

No longer does this situation persist. Administration still has, to be sure, a great importance in business—more especially in the very large units of business. But management has moved up to a place of equivalent importance in practically any company, though the heads of the business may not yet realize it. If they do not realize it pretty soon they will lose their business to more alert competitors.

One result of the time-honored conception of the administrator's supremacy is seen in the rather general desire of business executives to become administrators. To feel himself above the minutiae of operating his company—and, frequently, the discomfort of business travel—makes the average corporation president experience a warm glow of self-importance. Presently his chief lieutenants are likely to work themselves into the same state of mind. If, perchance, the infection spreads much further, the warm glow in the president's self-importance will be supplanted by sharp, shooting pains in the region of his pocketbook. When the institution has finally shaken down once more to a sane, profitable program, the clearing smoke is likely to disclose, sitting in the position of general manager, some man who is afraid neither of management nor of hard work.

True Administration Is Work

True administration is, of course, just as surely work as is management. But someone has truly said that the ruination of many a promising department head has come from hearing about the man who was paid $100,000 a year for just looking out his office window and thinking. It is too easy to start out with a high resolve to look out the window and think, only to end up by merely looking out the window! My personal observation leads me to believe, that much of the male contingent on a round-the-world steamship cruise is recruited from the ranks of men who in all honesty believe that they are administering their businesses. Actually, of course, if the businesses are making money, it is because some hard headed managers are running them.

Today's competition is what makes management of such preponderant importance in this era. Profit margins have fallen away to a shadow of what they were before and just after the war. Buyers are extremely choosy, which means that the best of management must be exerted in the factory, in the sales department, in the offices. Better management in competitive companies means that any institution must be operated continually well and steadily better if it wishes to survive and prosper.

Management as a science is going ahead more rapidly in these days than most of us realize. The subordinate executive—such men as department heads, assistants to officers, and the like—who really knew much about managing was a rarity in any business even ten years ago. The subsequent competitive condition has brought into business a great many younger men and women, whose whole training has been along the lines of operating according to fact and experience instead of hunch. And this same general condition has forced a great many of the people who were already in managerial positions to take the same line of development. Most of the managers who did not keep up have been dropped, or will be soon. Business cannot longer afford to support them.

Standards of Management Improved

Actually the standards of management have improved tremendously. Only the other day a friend of mine, head of a large mail-order business, was commenting on the change that has come over his own company. "Just a few years ago we had all of our important positions filled by a lot of old-timers who had grown up in the house," he pointed out. "They were good enough, I suppose, to meet the competition of their time. But they were not thinkers, they were not progressive. Without any conscious effort, we gradually supplanted them with men and women whose experience is briefer but better pointed to skill at managing, whose background is one of learning and thinking rather than of drifting along the easiest lines.

"The result is that we have shown greater progress as a corporation than ever before. We are making satisfactory profits under conditions that a few years ago would have shut off our flow of dividends and probably have earned us a deficit. And this whole toning up of the business to greater vitality is not to the credit of the officers, except as we have had gumption enough to bring along these keen youngsters. The young executives, managing the units of the business, have made the whole corporation sounder and more profitable."

Here he touched one of the outstanding results of the whole trend to greater importance of management. Conditions entirely outside their control have made it possible for young men, in any

* System.

[1] Chairman of the Board, Electric Household Utilities Corp.

line of business where the opportunity is not willfully closed to them, to take on greater responsibilities than before. Management can be learned by experience. It cannot be wholly learned from books. But a young man, having studied the theory of management wherever he could find worth-while facts about it, has a mind alert to apply every practical lesson that he encounters in his business experience. He has the daring, if you please, to break away from a time-honored method of operation that prevails simply because no one has ever had the get-up to change it for a better.

A few weeks ago, in London, a newspaper reporter asked my opinion of what would most benefit British business. I told him frankly that the greatest profit would accrue, and the greatest improvement in general prosperity and employment, if the old men who have always been the administrators and managers of British business would step aside in favor of their sons and the sons' contemporaries. And the idea was so startling, apparently, that they gave it a headline all the way across the page of the paper.

The greater vitality of American business has ruthlessly pushed aside many of the older men who have built the companies. Where, as in the case of Judge Gary, a huge corporation has need of the sage experience of an administrator who does not even think of the details of management, the corporation is probably better served by an old man than a young. But for the great operating executive staff of business, both in large units and in small, the progressive, alert younger man, with his mind trained for logical thinking and whetted for practical work by study of the basic principles of management, is far and away the best hope.

Intelligent Management More Needful

Broadening of the scope of many businesses makes active, intelligent management more needful than when business was broken up into smaller units—though do not let this statement give the impression that smaller units do not need the best of management. The science of management is something new because we have not had big business units or complex procedures for long. The science comprises, of course, the codified laws to which we are now trying to reduce management. But if the science is new, the practice comes close to antiquity. Good management is to be seen in almost all lines of human activity.

Take a company of soldiers, drawn up in company front for inspection. One company will present so even a line that the observer marvels that it could be drilled into them. The next company, while all its men are facing in the same general direction, has a ragged, unkempt appearance like a lawn that has been mown with a sickle instead of a lawn mower. The prize company, with its razor-edge front, is simply the result of good management. Its officers—and probably even more its top sergeant!—taught the rank and file how to do it. They earned the respect and cooperation of their men by fair dealing, by their competence, by their knack of getting along with human beings.

More especially, this human side of management can be learned by experience and not out of books. To be sure, the principles have been formulated and printed for all to read. But it takes real experience to know just what the situation is so that you can tell which principle applies to it. Therefore, you have to know about it at first hand, the closer to the men the better. I have yet to observe anybody running an office department who knew how to get along with his subordinates, and yet get every ounce of effort from them, as well as the average experienced section foreman on a railroad. To be sure, a section foreman could not manage a central stenographic department. But for a knowledge of the particular kind of human nature he must handle, give me a section boss every time.

Ordinarily, in my observation, that manager gets along best with people who have come up through the ranks. The man with more education may have, in an individual instance, so many other strong points that he over-balances the personnel advantages of the man who came up from office boy. But there is no way to learn how to manage people that is equal to first being managed for a while, and then applying to a managerial job what you learned in the ranks.

Managing a business, or a division, department or section of a business, at a profit resolves itself pretty much into keeping every part of the job in balance with every other part, and doing the whole job with the minimum expenditure of time and money for the effect attained. Good management demands a willingness to work; this talk about a good manager or good executive letting other people do his work is in large measure an excuse that has been devised to salve the consciences—of the bosses—and executives who like to play golf three times a week, besides week-ends.

But blind willingness to work will not produce good management. Primarily the good manager bases his conclusions on facts, rather than on guesses. And it requires an amount of mental discipline to hold yourself to factual thinking. Most people who have occupied managerial places in the past have even been too lazy to gather the facts necessary to such thinking—much less to do the thinking.

Can't Afford to Take Wide Chances

Conditions today make it essential that conclusions be attained by means more careful than by-guess and by-golly. You can not afford to take any very wide chances in, say, your marketing practices if your net margin of profit on sales is only 1 per cent. A very slight miscalculation will wipe out the company's profit for the year. Similarly, if office costs constitute 30 per cent of the company's overhead which already strikes the directors as too high, you will do well to know exactly what you are getting into when you undertake a new set of routines for the office, or a new method of paying the office employees. If either goes wrong, and expenses go up, your company—and probably yourself——are in trouble.

Factory management has been on this factual basis in many industries for a good many years. Office management is getting there steadily if not rapidly. Sales management, because it deals entirely with the intangibles of human reaction, is making the least progress in this direction. Yet all three are going ahead steadily—even sales management is making faster strides than factory management was making twenty years ago. This, as has already been said in other words, is not a matter of chance. It is a matter of necessity. Business demands better management.

Protecting Canada's Pulpwood Lands

Figures made available this week by Captain Roy Maxwell tell the astounding story that since May 1 last the Provincial Air Force has rolled up a total of 11,500 flying hours to its credit, or, in other words, has flown approximately 850,000 air miles over the timber wealth in Ontario. Not a single flying record—day, week, month, individual or entire force—of past years remains. All have been shattered in the 11,500 hour grind—5,400 more hours than in 1928—brought upon the force by one of the worst fire hazard years in the history of the Department of Lands and Forests. "But what pleases me most of all," remarked Captain Maxwell, "is that the great record has been established without injury to a single member of our service personnel or to a single passenger that we from time to time have carried with us." Only two stations of the many from which the flyers battled with the bush fires this season remain open at the present time—Fort Frances and Kenora. While no further hazards are anticipated, several small fires were spotted from a patrol out of Sudbury last week, and the service is taking no chances, but is keeping a couple of stations on the job for a short while yet. In most cases, however, the reconditioning program of the service is well under way, and most of the machines that were engaged on detection and suppression work are now at the Sault Ste. Marie base for refitting and overhauling in readiness for the 1930 season.

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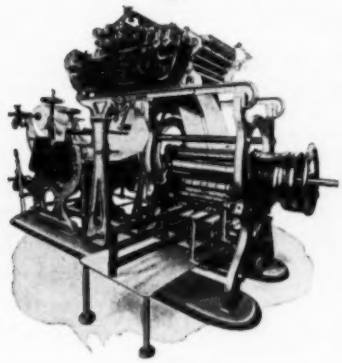

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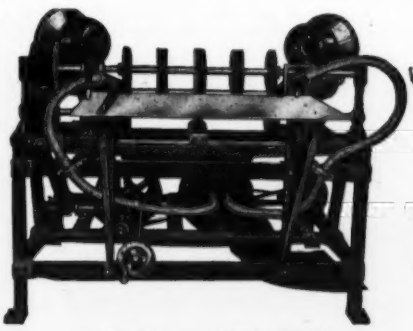

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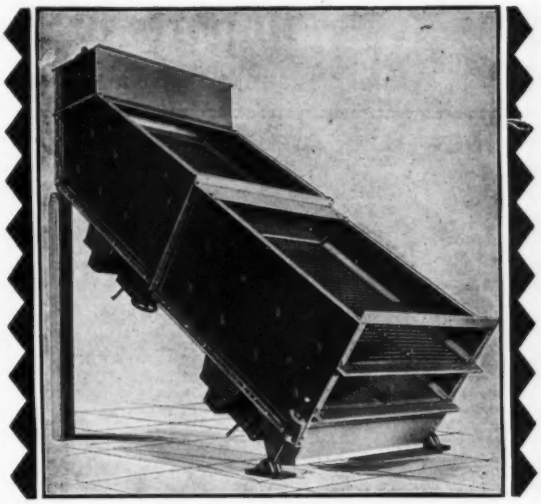

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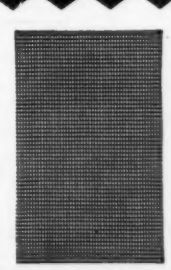

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WEEK ENDING NOVEMBER 9, 1929

SUMMARY

Cigarette paper .....497 cs.
Wall paper .....114 bls., 14 cs.
Paper hangings .....38 bls., 1 cs.
Painted paper .....2 cs.
News print .....654 rolls
Printing paper .....143 cs.
Wrapping paper .....151 cs., 8 rolls
Decalcomania paper .....19 cs.
Filter paper .....12 cs.
Photo paper .....2 cs.
Colored paper .....38 cs.
Baryta coated paper .....270 cs.
Surface coated paper .....117 cs.
Gold coated paper .....5 cs.
Metal paper .....20 cs.
Condenser tissue paper .....9 cs.
Tissue paper .....105 cs.
Wax coated paper .....7 cs.
Writing paper .....23 cs.
Copy paper .....25 cs.
Silk paper .....10 cs.
Caoutchouc paper .....8 cs.
Stencil paper, etc. .....90 cs.
Transparent greaseproof paper .....99 cs.
Cover paper .....3 cs.
Miscellaneous paper ....96 rolls, 418 bls., 392 cs.

CIGARETTE PAPER

American Tobacco Co., La Bourdonnais, Bordeaux, 400 cs.
Liggett & Myers Tobacco Co., La Bourdonnais, Havre, 13 cs.
Standard Products Corp., La Bourdonnais, Havre, 84 cs.

WALL PAPER

F. J. Emmerich, Minnetonka, London, 1 ble.
Globe Shipping Co., St. Louis, Hamburg, 1 cs.
Irving Trust Co., St. Louis, Hamburg, 8 cs.
F. J. Emmerich, St. Louis, Hamburg, 3 bls.
Phoenix Shipping Co., St. Louis, Hamburg, 2 cs.
F. J. Emmerich, Cedric, Liverpool, 5 bls.
Prager Co., Inc., Pennland, Antwerp, 80 bls.
A. C. Dodman, Jr., Inc., Homeric, Southampton, 15 bls.
Perry Ryer & Co., Homeric, Southampton, 1 cs.
J. E. Bernard & Co., Homeric, Southampton, 2 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Minnetonka, London, 20 bls., 1 cs.
A. C. Dodman, Jr., Inc., Cedric, Liverpool, 18 bls.

PAINTED PAPER

A. C. Dodman, Jr., Inc., Ile de France, Havre, 2 cs.

NEWS PRINT

Journal of Commerce, Schenectady, Helsingfors, 83 rolls.
Stora Kopperberg Corp., Kungsholm, Gothenburg, 143 rolls.
Perkins, Goodwin & Co., St. Louis, Hamburg, 428 rolls.

PRINTING PAPER

F. L. Kramer & Co., A. Shipper, London, 3 cs.
Oxford University Press, Cedric, Liverpool, 5 cs.
Japan Paper Co., Homeric, Southampton, 6 cs.
——, Karlsruhe, Bremen, 99 cs.
F. C. Strype, Gaasterdyk, Rotterdam, 30 cs.

WRAPPING PAPER

Standard Products Corp., Pennland, Antwerp, 8 cs., 8 rolls.
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——, Karlsruhe, Bremen, 21 cs.

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A. Hurst & Co., La Bourdonnais, Bordeaux, 267 bags.
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National City Bank, Exeter City, Bristol, 650 bags.

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(Continued on page 72)

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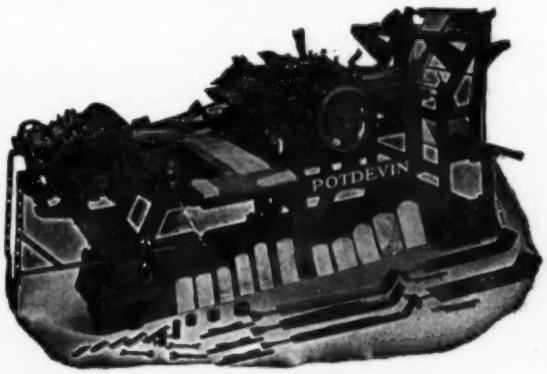

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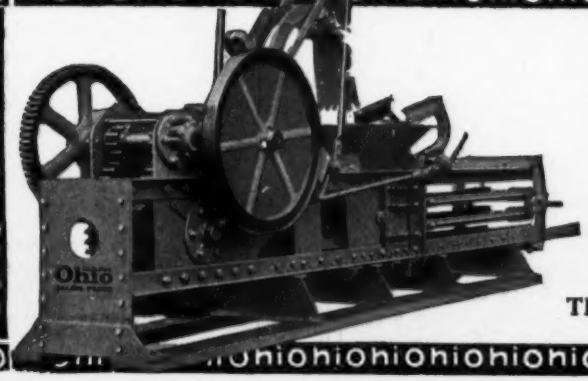

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(*Continued from page 70*)

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WOOD FLOUR

Innes, Speiden & Co., Kungsholm, Gothenburg, 726 bags.

The Burnet Co., Gaasterdyk, Rotterdam, 250 bags.

State Chemical Co., Gaasterdyk, Rotterdam, 790 bags.

PHILADELPHIA IMPORTS

WEEK ENDING NOVEMBER 9, 1929

J. A. Steer & Co., Cabo Torres, Bilbao, 36 bls. rags.

Tradesman's National Bank, Sorvard, Barcelona, 109 bls. rags.

French American Banking Corp., Sorvard, Marseilles, 114 bls. rags.

S. E. Ingber, Sorvard, Barcelona, 109 bls. rags.

National Vulcanized Fibre Co., Sorvard, Barcelona, 180 bls. rags.

C. B. Richard & Co., Exeter City, Bristol, 186 bls. rags.

Castle & Overton, Inc., Exeter City, Bristol, 100 bls. rags.

J. A. Steer & Co., Exeter City, Bristol, 77 bls. waste paper.

J. A. Steer & Co., Exeter City, Bristol, 62 bls. old rope.

W. J. Jones, Waukegan, Havre, 12 cs. wall paper.

Castle & Overton, Inc., Waukegan, Havre, 129 bls. rags.

Darmstadt, Scott & Courtney, Waukegan, Havre, 139 bls. rags.

A. Hurst & Co., Waukegan, Havre, 80 bls. rags.

Belgian Corp., Waukegan, Havre, 147 bls. rags.

J. A. Steer & Co., Waukegan, Havre, 80 bls. rags.

J. A. Steer & Co., Waukegan, Dunkirk, 98 bls. rags.

D. I. Murphy, Waukegan, Dunkirk, 88 bls. rags.

Walworth & Sons, Waukegan, Dunkirk, 44 bls. rags.

Union Waste Co., Waukegan, Dunkirk, 64 bls. rags.

G. Mathes & Co., Waukegan, Dunkirk, 72 bls. rags.

BOSTON IMPORTS

WEEK ENDING NOVEMBER 9, 1929

Pagel, Horton & Co., Inc., Schenectady, Domsjo, 3,000 bls. sulphite, 300 tons.

Lagerloef Trading Co., Schenectady, Rauma, 1,970 bls. sulphite, 334 tons.

——, Schenectady, Tolkis, 1,820 bls. sulphite, 369 tons.

N. E. Berzen, Sorvard, Marseilles, 54 bls. old rope.

Leigh Textile Co., Sorvard, Barcelona, 151 bls. rags.

G. W. Millar & Co., Sorvard, Valencia, 417 bls. rags.

T. M. Duche & Sons, Sardinian Prince, Buenos Aires, 167 bags casein, 10,020 ks.

1st National Bank of Boston, Sardinian Prince, Buenos Aires, 417 bags casein, 25,020 ks.

PORTLAND IMPORTS

WEEK ENDING NOVEMBER 9, 1929

Pagel, Horton & Co., Inc., Schenectady, Husum, 3,000 bls. sulphite, 500 tons.

Lagerloef Trading Co., Schenectady, Rauma, 9,584 bls. wood pulp, 1,662 tons.

Lagerloef Trading Co., Schenectady, Helsingfors, 677 bls. sulphite, 101 tons.

Lagerloef Trading Co., Schenectady, Helsingfors, 1,224 bls. wood pulp boards, 203 tons.

——, Schenectady, Tolkis, 3,030 bls. sulphite, 615 tons.

Swedish Pulp Company Acquires New Property

The Swedish Cellulose Company, recently incorporated by the Kreuger & Toll Company to acquire control of ten Swedish wood pulp companies, with assets totaling approximately $85,000,000, has increased its holdings by purchasing control of the Sundsvalls Cellulose Company, which will add 35,000 tons to the pulp capacity of the combine, it was announced last week. The addition of this company will give Swedish Cellulose control of 32 per cent of Sweden's output of pulp, the eleven companies having annual sales aggregating approximately $30,000,000.

By this combination of important wood pulp and lumber companies, Ivar Kreuger, who negotiated the eleven separate deals, aims to accomplish in this industry the same results which followed the consolidation of independent match companies in Sweden sixteen years ago.

Companies controlled by Swedish Cellulose are located in northern Sweden and own timber land totaling more than 4,000,000 acres. An interesting point bearing on these vast holdings of lumber is that under the Swedish law the acreage of forests that can be acquired by industrial companies cannot be increased from the present total.

Through Hammorsfornes Water Power Company, controlled by Kreuger & Toll Company, the new corporation will have water power totaling 250,000 horsepower, of which 85,000 horsepower is developed and now in use.

Making Bids for Manitoba Limits

Keen interest in the leasing of Manitoba timber limits is evidenced by the reports emanating from Winnipeg to the effect that a number of companies operating along the Ontario border and in Northern Manitoba are making application for new allotment for pulpwood concessions. The Manitoba Paper Company, Brown and Rutherford, and the International, expect to get new allotments of timber berths in the Lake Winnipeg district. Brown and Rutherford have applied for all berths covering forty townships convenient to the company's Birch Point mills, but this is within the limits of the Manitoba Paper Company's territory, where they are guaranteed 6,000,000 cords by the Government. Available supplies are getting farther from transportation sources.

Visit Kalamazoo Paper Co. by Airplane

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., November 11, 1929.—The Moser Paper Company staged a personally conducted tour by airplane Wednesday, bringing to Kalamazoo a group of representative Milwaukee printers for an inspection of the plants of the Kalamazoo Paper Company. They were met at the Kalamazoo airport by officers of the local concern and taken to the Park Club, where F. M. Hodge, president of the Kalamazoo Paper Company, presided at a luncheon session. They made the return trip to Milwaukee at 4 Wednesday afternoon.

The visitors included: Fred Voigt, Federal Printing Company; Paul Laabs, Olsen Publishing Company; Laverne Rapp, Gugler Lithographing Company; A. Robert Schulz, A. C. Schulz Lithographing Company; Frank Treis, Imperial Lithographing Company; George A. Just, Moser Paper Company; Henry Tetzlaff, Milwaukee Printing Company; A. C. Schulz, Schulz Lithographing Company, and S. E. McQueen, Moser Paper Company.

Those from the Kalamazoo Paper Company included: F. M. Hodge, A. E. Curtenius, Peter F. Denner, Glenn T. Ingling; George T. Jubb, Ray W. Harrington and Howard P. Hall, PAPER TRADE JOURNAL.

Japanese Paper Production

WASHINGTON, D. C., November 6, 1929.—The Japanese Paper Manufacturers Association reports production by member mills during the month of August at 59,286 short tons and sales at 55,663 tons. Sixty-five per cent of the total production was represented by printing papers, chiefly news print which amounted to 23,787 tons. Total production during the first eight months of the current year amounted to 472,531 tons and sales to 456,365 tons as against 424,809 tons, and 417,602 tons respectively during the corresponding period last year.

Agents for Resistall Papers

The Messinger Paper Company, of Chicago, has been appointed an agent for Resistall Linen Ledger, Resistall Bond and Resistall Index Bristol, the three new water, oil, perspiration and abrasion resistant papers developed by the L. L. Brown Paper Company.

Sulphur

A FIRST REQUISITE

in

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO
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The Use of

ELIXMAN CORES

protects your rolls and insures their delivery to your customer in perfect condition. They eliminate claims for damages.

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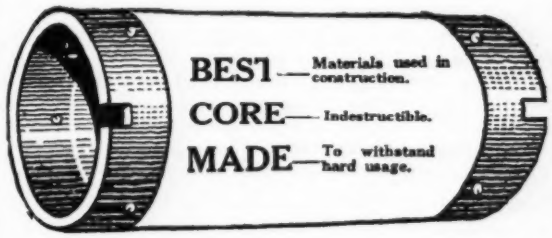

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Elixman Paper Core Company
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West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED
and
MACHINE FINISHED BOOK
and LITHOGRAPHIC
PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

also

Bleached Spruce Sulphite and Soda, Kraft Pulp

230 Park Ave. New York
35 East Wacker Drive Chicago
503 Market St., San Francisco, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, November 13, 1929.

A general condition of increased steadiness is noticeable in the local paper market. The recent stock market drop has not caused any corresponding wavering of prices in paper quotations or orders. A good volume of orders for immediate and future delivery continues to be booked by the leading paper organizations.

Favorable demand, price and production characterizes the news print market. A strong undertone is exhibited. Shipments are going forward steadily at about 90 per cent of rating. North American mills are running at approximately 84 per cent of capacity. If present conditions continue, as they give every prospect of doing, the future will be even more promising.

Paper boards are still in fair request, with no radical changes in the unsatisfactory price situation. The market for fine paper remains at its former sound level, with prices as previously quoted. There is a slightly increased demand for tissues, and in the coarse paper market similar improvement is noticed, in wrapping paper especially. All grades are going forward at a fair rate on contract shipments.

Mechanical Pulp

Ground wood production remains somewhat below normal both here and abroad, and there is a consequent scarcity of offerings. Business is being transacted along regular lines, with shipments against contract up to par for the time of year. Very few concessions are spoken of, and prices remain basically the same, with no outstanding variations.

Chemical Pulp

There was moderate activity in the chemical pulp market during the past week. Demand continues fair for both foreign and domestic products in this field, with the exception of bleached sulphite, which is slightly below normal. The undertone of prices for easy bleaching and strong unbleached grades of sulphite pulp remain firm.

Old Rope and Bagging

The market for old rope and bagging exhibits a prevailing steadiness, with domestic old manila rope in good demand. Scrap and roofing bagging are fairly active, with prices at previously quoted levels. No. 1 scrap bagging is being shipped at a seasonal rate, mainly to the tissue mills.

Rags

Renewed interest in domestic rags continues from the paper mills, with the European rags remaining at a fairly high price level, and consequently bringing little request. Although the domestic grades are moving into consumption steadily, and prices on the better sorts hold to their former level, offerings are scarce.

Waste Paper

A downward tendency in prices on the lower grades of waste paper has been felt during this last week, although the better grades are going forward in good quantities. Hard white shavings, No. 1 are now quoted at $3.00 to $3.25, Soft white No. 1, $2.30 to $2.45, White envelope cuttings $2.90 to $3.10, with some slightly higher quotations on the latter. New B. B. Chips are selling at .45 to .55, while print manilas are quoted at .60 to .65, container manilas at .45 to .50. No. 1 Mixed Paper goes for .35 to .40, and Common Paper at .20 to .30.

Twine

In the local twine market demand continues seasonal, with no appreciable changes in price. Shading is still infrequent, and the holiday trade keeps the better grades moving steadily into consumption.

Indianapolis Paper Demand Not Active

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., November 11, 1929.—Little change is reported in the paper industry in this section. The mills are producing about an average volume for this time of the year, but the inquiries and orders now on books are not particularly encouraging. Jobbers report only an average business, though, of course, holiday grades are increasing in sales volume.

Users of nearly all lines of paper are buying only what is imperative and their stocks generally are very low. From all indications they will continue to maintain this buying aatitude, the jobbers and mills being depended on to carry the load. Demand for book and kraft papers is fair, but is hardly better than this time last year.

Increasing orders are being placed for glassine and similar papers which are being used by the candy and cigar trade in in this state for its holiday merchandise. In fact all during the present year there has been an increasing call for glassines as more and more uses are being found for it. The box factories report increasing business, particularly the manufacturers of smaller boxes.

50,000 in German Marks in Paper Stock

[FROM OUR REGULAR CORRESPONDENT]

MITTINEAGUE, Mass., Nov. 12, 1929.—Mrs. Rose De Mercerio, of the rag department of the Strathmore Paper Company saw visions of great wealth as she extracted a certificate for 50,000 German marks one day last week from a bale of rags. The note was sent to the West Springfield Trust Company for inspection and their reports was that the note did not match up with any of the German money in the bank and that they believed it was practically worthless.

The note is believed to be one of the old issues of the German government now obselete and sells in this country for curiosities from one to ten cents. However to make sure the note was sent to a New York bank for expert inspection.

To Be Sales Manager of Missisquoi Co.

The Missisquoi Pulp and Paper Company, Sheldon Springs, Vt., has appointed E. R. Lyman as manager of sales, succeeding H. E. Lindquist, who resigned his position on November 1. Mr. Lyman has been connected with the Missisquoi Company for over ten years, acting as sales manager part of this period, and is well known to the entire trade. The Missisquoi has been one of the most successful mills on the continent, developed through many economic advantages which it possesses, and manned by a personnel of recognized experience in the production of fine cardboard and specialties. It has been the established policy of the company to cater to the distributing trade exclusively.

PARIS BLACK IN FIBRE CONTAINERS

Still going strong . . have you ordered?

Buyers liked the idea of Paris Black in Fibre Containers right from the start. There has been no let down in the demand—in fact, it is increasing.

So this is a reminder to try it, in case you aren't already a satisfied user. By packing in fibre containers, the full strength and fine quality of Heller & Merz Paris Black reaches your plant unimpaired.

Prompt deliveries made from stocks in
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prevent grooving of Seams on machines not equipped with oscillating Suction Boxes. This lengthens the life of wires and increases their production.

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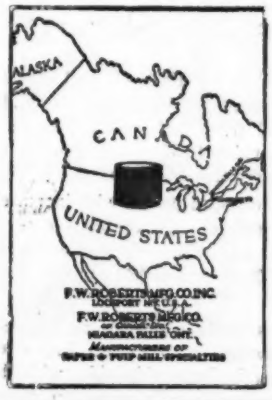

B U R R S

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, November 13, 1929.

BLANC FIXE.—Conditions in the blanc fixe market are satisfactory. There is a good demand for both pulp and powder. Quotations on the pulp are $42.50 to $45 per ton in bulk. The powder price is from 3¾ to 4½ cents per pound, at works, in barrels.

BLEACHING POWDER.—The market for bleaching powder is still fairly active. Shipments are going forward on contract at a good pace. Schedule prices are holding firm at $2.00 to $2.35 per 100 pounds, at works, in large drums.

CASEIN.—Trading in the casein market is quiet, with unchanged prices prevailing. The Argentine standard ground goes for 16 to 16¼ cents, with the finely ground selling at from 16½ to 17 cents per pound. Prices on domestic brands are from 15½ to 16¾ cents per pound. These quotations are for car load quantities, in bags.

CAUSTIC SODA.—No radical changes have occurred in the caustic soda market. General steadiness prevails, with contract shipments moving normally, and prices at the scheduled level. Flake and ground caustic soda is quoted at from $3.30 to $3.35 per 100 pounds, at works, in large drums, with the solid at from $2.90 to $2.95.

CHINA CLAY.—The china clay market remains in satisfactory condition as to price and contract movement. Domestic paper making clay sells at from $8 to $13 per ton, at mine, while the imported china clay remains at the former price level of $15 to $25 per ton, ship side.

CHLORINE.—Slightly increased activity in bookings for 1930 delivery at the new contract price of $2.85 per 100 pounds in tank cars, at works, has been noted in chlorine during the past week. Spot demand continues light. The cylinder quotations remain unchanged.

ROSIN.—The market for rosin is steady, with good demand and firmer tone in price. Wood rosin from $7.00 to $8.05 per 280 pounds, at southern shipping points in barrels, is again quoted, and for gum rosin a price of $9.30 per 280 pounds, on dock, in barrels.

SALT CAKE.—Shipments of salt cake on contract are going forward steadily. Few offerings are being made, with a consequent strengthening effect upon prices. The quotations are now from $17 to $18 per ton for chrome salt cake, while $20 to $23 is the price for salt cake, in bulk, at works. Demand is very strong.

SODA ASH.—The movement of soda ash into consumption goes forward satisfactorily, with current demand being met by seasonal production. The price level holds at $1.32½ in bags, $1.55 in barrels, in car lots, at works.

STARCH.—A firm tone prevails in the starch market. Production is maintained in quantity sufficient to fill current demand. Schedule prices hold steady at $3.92 per 100 pounds, in bags and at $4.19 per 100 pounds, in barrels, at works, for special paper mill starch.

SULPHATE OF ALUMINA.—Sound conditions are found in the sulphate of alumina market this week, with shipments going forward at a good pace, and strong demand continuing. Iron free sulphate is quoted at $1.90 to $2.05 per 100 pounds, in bags, at works, while commercial sulphate remains at $1.40 to $1.55.

SULPHUR.—Unchanged prices, with increased demand characterize the sulphur market. Quotations are for spot and near by car loads, $21 per ton, with yearly contracts at $18 per ton at mine in lots of 1,000 tons, and $20 per ton for smaller quantities during that period.

TALC.—Previous levels in the talc market remained unchanged with routine transactions of business. Imported talc is selling at $18 to $20 per ton, in bags, ship side, with domestic grades at from $16 to $18 per ton, in bulk, at eastern mines.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@53.25
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00
Book, Cased—		
S. & S. C.	6.00	@ 7.50
M. F.	5.75	@ 7.00
Coated and Enamel	7.50	@12.00
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.35	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .80
Kraft	1.00	@ 1.10
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	5.25	@ 5.50
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

News, per ton—		
Rolls, contract	62.00	@ —
Rolls, spot	62.00	@ —
Sheets	67.00	@ —
Side Runs	47.00	@52.00
Boards—per ton—		
News	37.50	@40.00
Straw	52.50	@55.00
Chip	35.00	@37.50
Binders' Boards	65.00	@70.00
Wood Pulp	80.00	@85.00
65 Test Jute Liner	52.50	@ —
85 Test Jute Liner	55.00	@ —
Sgl. Mla. Ll. Chip	47.50	@50.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	30.00	@32.00
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@30.00
Screenings	15.00	@20.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.25
Easy Bleaching	3.00	@ 3.15
No. 1 strong unbleached	2.75	@ 3.00
Mitscherlich unbleached	2.80	@ 3.25
No. 2 strong unbleached	2.40	@ 2.60
No. 1 Kraft	2.35	@ 2.65
No. 2 Kraft	2.30	@ 2.50
Sulphate—		
Bleached	3.60	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.65	@ 3.00
News Sulphite	2.50	@ 2.70
Mitscherlich	3.00	@ 3.25
Kraft (Domestic)	2.10	@ 3.30
Soda Bleached	3.10	@ 3.25
Sulphate Screenings—		
Coarse	.75	@ .95
Refined	1.65	@ 1.85

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.00	@11.50
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.50	@ 8.00
New Unbleached	11.00	@11.50
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Blue Overall	7.50	@ 8.00
Washables	4.75	@ 5.25
Fancy	5.75	@ 6.25
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.15	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.90	@ 1.05

Foreign Rags

New Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cuttings	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50

Old Rags

No. 1 White Linens	7.50	@ 8.25
No. 2 White Linens	5.75	@ 6.75
No. 3 White Linens	4.75	@ 5.25
No. 4 White Linens	3.00	@ 3.50
No. 1 White Cotton	5.50	@ 6.50
No. 2 White Cotton	4.50	@ 5.50
No. 3 White Cotton	3.00	@ 4.00
No. 4 White Cotton	1.90	@ 2.15
Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	2.00	@ 2.10
Dutch Blue Cottons	2.25	@ 2.40
French Blue Linens	2.75	@ 2.85
German Blue Linens	2.35	@ 2.55
German Blue Cottons	2.15	@ 2.25
Checks and Blues	1.85	@ 2.00
Lindsay Garments	1.85	@ 1.95
Dark Cottons	1.55	@ 1.60
Old Shopperies	1.50	@ 1.55
New Shopperies	1.50	@ 1.60
French Blues	2.10	@ 2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.60	@ 1.70
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, Heavy	1.60	@ 1.70
Bright Bagging	1.60	@ 1.70
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	4.40	@ 4.60
Domestic	4.75	@ 5.00
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	3.00	@ 3.25
Hard, white, No. 2	2.40	@ 2.55
Soft, White, No. 1	2.30	@ 2.45
White envelope cuttings	2.90	@ 3.10
Flat Stock—		
Stitchless	1.45	@ 1.55
Overissue Mag.	1.45	@ 1.55
Solid Flat Book	1.40	@ 1.50
Crumpled No. 1	1.00	@ 1.10
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.40	@ 1.50
New B. B. Chips	.45	@ .55
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.50	@ 1.75
Extra No. 1 old	1.25	@ 1.35
Print	.60	@ .65
Container	.45	@ .50
Bogus Wrapper	.65	@ .70
Old Kraft Machine Compressed bales	1.70	@ 1.80
News—		
No. 1 White News	1.65	@ 1.75
Strictly Overissue	.70	@ .80
Strictly Folded	.60	@ .65
No. 1 Mixed Paper	.35	@ .40
Common Paper	.25	@ .30

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company
PROVIDENCE, R. I.

Do you have

Groundwood Troubles?

Try EMPIRE PULP STONE

In use since 1898

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STEUBENVILLE, OHIO
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ABSOLUTE UNIFORMITY
American Made for American Trade
Two Leading American Clays
H. T. BRAND
For Coating and Filling
Used extensively by Leading Paper Mills
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Edgar Clays are the result of almost half century of experience in washing clay. Technical service available for both coating and loading without charge.
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EASTWOOD WIRE CORPORATION, BELLEVILLE N.J. U.S.A.

Twines
(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¾	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¾	@	.06½
Southern Kraft	4.25	@	4.50
No. 2 Kraft	.04	@	.04¾
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03¾
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	37.50	@	42.50
Solid News	47.50	@	—
Solid News	40.00	@	45.00
Manila Lined Chip	50.00	@	55.00
Container Lined—			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.20	@	2.25
White Env. Cuttings	2.40	@	2.50
No. 1 Soft Shavings	2.00	@	2.10
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.70	@	.75
Ledger & Writings	1.25	@	1.35
Solid Books	1.25	@	1.30
Blanks	1.40	@	1.50
Krafts	1.60	@	1.75
New Kraft Cuts	2.15	@	2.25
Manila Envelope Cuttings	1.65	@	1.75
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.75	@	.80
Folded News (over-issue)	.80	@	.85
Old Newspapers—			
No. 1	.65	@	.70
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.60	@	.65
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.06	@	.40
Ledgers	.09	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.10	@	.20
Book, M. F.	.05½	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.09½	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.08	@	.09
Manila Sul., No. 1	.04	@	.05¾
Manila No. 2	.03	@	.04
No. 2 Kraft	.06	@	.06¾
No. 1 Kraft	.06½	@	.07
Common Bogus	.03½	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	75.00
News Board	40.00	@	40.00
Chip Board	38.00	@	40.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue			11¼
Fancy	.05½	@	.06

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.80	@	2.90
No. 2 Soft White	1.80	@	1.90
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.85	@	1.90
Writing Paper	1.60	@	1.65
No. 1 Books, heavy	1.40	@	1.50
No. 2 Books, light	1.05	@	1.15
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.50
Common paper	.50	@	.55
No. 1 Mixed Paper	.60	@	.65
Straw Board, Chip	.60	@	.65
Binders Board, Chip	.60	@	.65
Overissue News	.80	@	.85
Old Newspaper	.50	@	.55

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2	2.00	@	2.25
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.65	@	1.75

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.06¼	@	.06½
No. 2 Kraft	.04½	@	.05½
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls .009			52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	37.50	@	40.00
Chip Board	35.00	@	37.50
Single Manila Lined Chip	50.00	@	—
Single White, Patent Coated Newsboard Bender	65.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.40	@	2.50
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.50	@	1.55
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	.90	@	1.00
White Blank News	1.50	@	1.60
Old Kraft	1.75	@	1.80
Print Manila	.80	@	.90
No. 1 Mixed Paper	.45	@	.50
Overissue News	.70	@	.75
Old Newspapers	.55	@	.57½
Box Board, Chip	.55	@	.60
Repacked	.01¾	@	.02
No. 2	1.30	@	1.35
No. 3 (Roofing)	1.15	@	1.25
No. 4	1.00	@	1.15
No. 5A	.75	@	.85
B	.65	@	.75
C	.65	@	.75

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.40	@	1.50
Manila Rope—			
Foreign	4.37½	@	4.50
Domestic	4.50	@	4.75
Transmission Rope	—	@	3.00
Mixed Strings	1.00	@	—
Jute Wool Strings	1.00	@	1.05
Jute Carpet Threads	1.05	@	1.15
Scrap Burlaps	1.37½	@	1.50
Scrap Sisal	1.80	@	2.00
Scrap Sisal for shredding	1.85	@	2.00
Wool Tares, heavy	1.60	@	—
New Burlap Cutting	1.90	@	2.00
Australian Wool Pouches	3.00	@	3.12½

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09½	@	.10
Silesias, No. 1	.06	@	.06¼
New Unbleached	.10	@	10½
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04¾
Khaki Cuttings	.04	@	.04¾
O D. Khaki	.05	@	
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	1.90
Black Stockings	—	@	4.00
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags
(F. o. b. Boston)

Dark Cottons	—	@	1.55
New No. 1 Shirt Cuttings	9.00	@	9.50
Dutch Blues	2.00	@	2.15
Lace Curtains	4.75	@	5.00
New Checks & Blues	4.25	@	4.50
Old Fustians	1.90	@	2.00
Old Linsey Garments	1.80	@	1.85

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	11.50	@	—
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft M. F.	7.00	@	—
M. G.	7.00	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	60.00	@	—
Sulphite, bleached	77.00	@	78.00
Sulphate	60.00	@	

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.85	@	—
Strictly Folded	.85	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09¼	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

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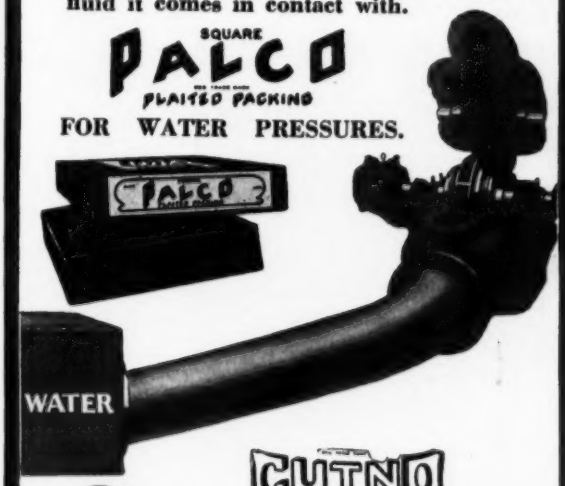

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PAPER TRADE JOURNAL

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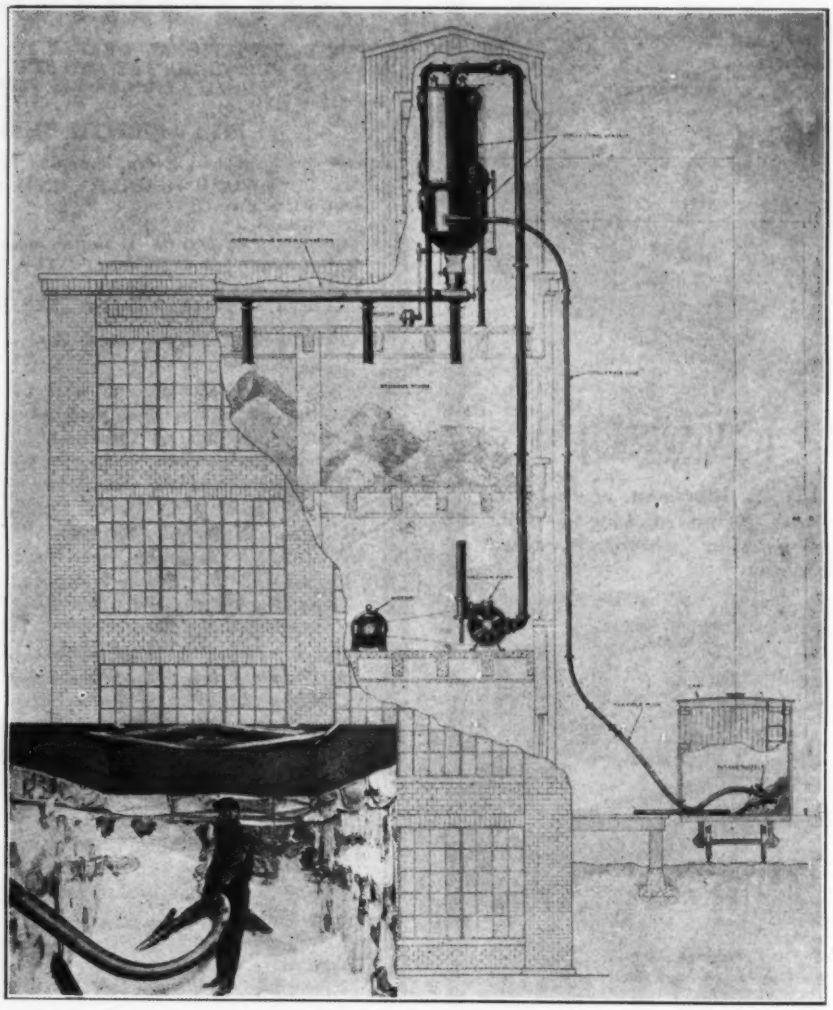
PULVERIZED AND AIR WASHED



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